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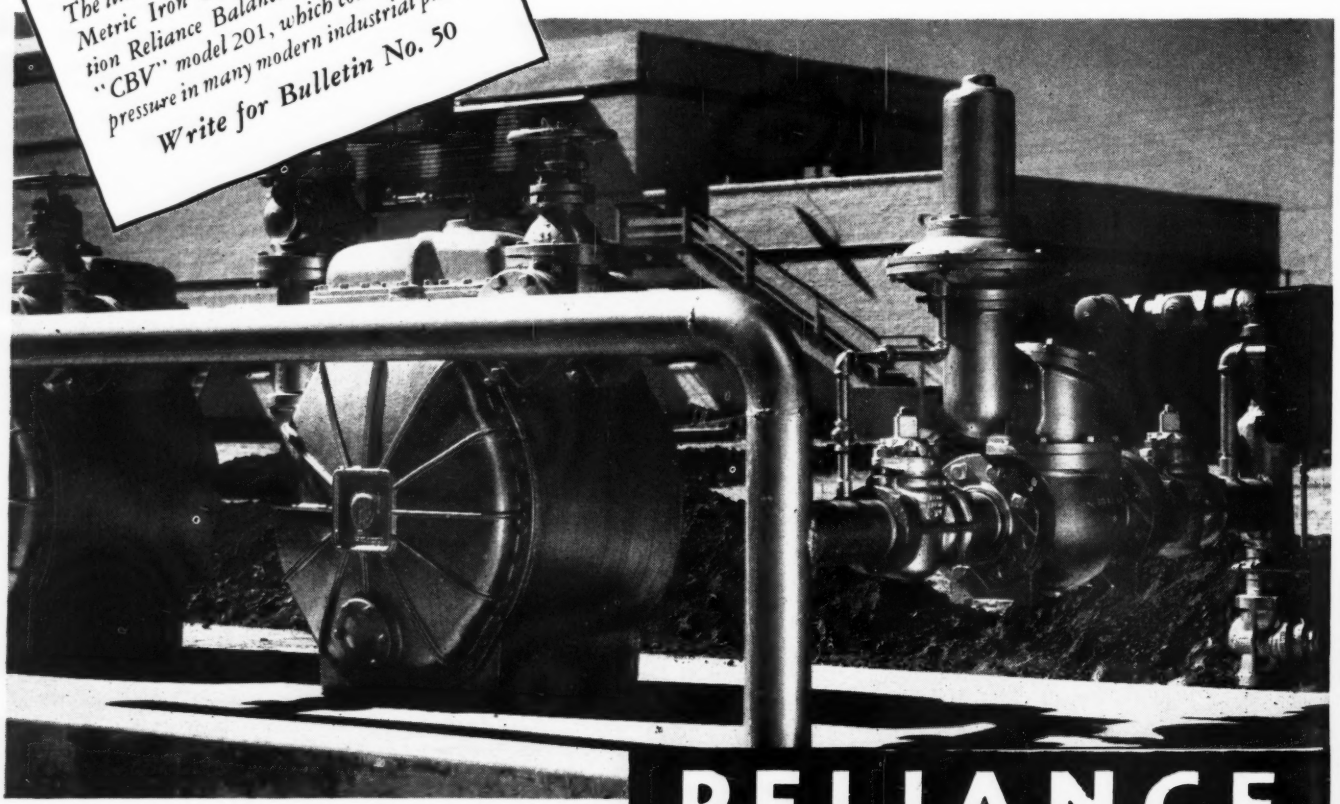
The illustration below shows an American Metric Iron Case Meter and combination Reliance Balanced Valve Regulator, "CBV" model 201, which controls the gas pressure in many modern industrial plants.

Write for Bulletin No. 50



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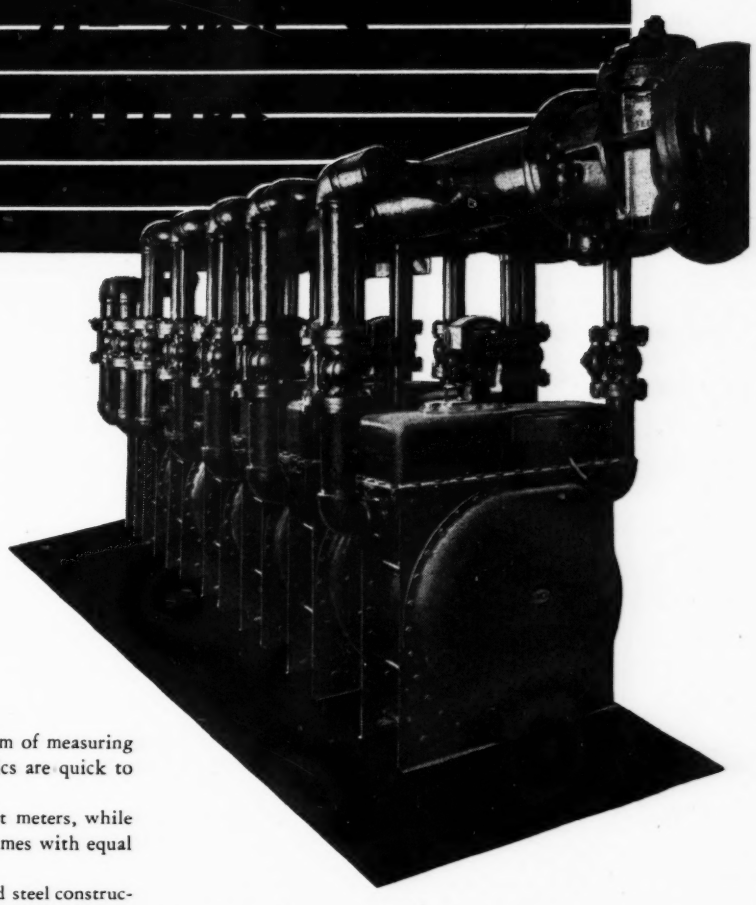

Here is a battery of seven No. 5 EMCO Pressed Steel Meters equipped with Emcorectors installed at a large housing project. Note that this entire manifold has been compacted into a very small floor area while full accessibility is provided for reading or on-the-spot servicing.

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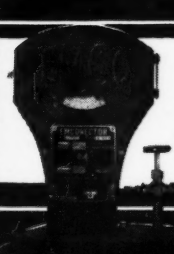

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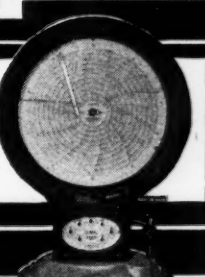

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GAS

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Twenty-Third Year of Publication

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Thermally Thinking

By ELLIOTT TAYLOR

Nationalized Gas

WE recommend with special emphasis the careful reading of the article by Samuel H. Crosby, Washington attorney and former member of the legal staff of the Federal Power Commission, on page 25 of this issue of GAS. In a nutshell Judge Crosby makes the point that the present rate making policies of the FPC, already upheld by the courts, can have no other objective and end than the ultimate nationalization of the natural gas industry.

It may come as a shock to industry executives, and to stockholders in natural gas properties, to realize that of the nearly $2 billion invested in plants by natural gas companies, over one-third is shown as book reserves for depreciation and amortization, items which, in the author's own words, "the Commission considers . . . as capital returned to the owners of the business;" with their net investment, upon which rates are based, shrunk accordingly. The "vanishing rate basis" is indeed no mere figure of speech; on the contrary it is revealed as the ideological foundation for final public ownership of the whole natural gas industry.

The Real Issue

Any diatribe that we might deliver in these columns against public ownership would have little weight. It would be like a character sketch of Josef Stalin or Henry Wallace in the columns of "The New Republic". Only a visitor from another world would have to read it through to discover what the conclusions were to be.

The point at issue is not whether the policies and the regulations of the FPC conform to our view, or even to the gas industry's view, of what is just and desirable as an objective. The real issue is whether or not those policies and regulations reflect the will of Congress and of the body politic in whose behalf all Congresses presume to speak.

The Federal Power Commission spent well over a year investigating the natural gas industry in its famous Docket G-580 hearings. The commission's own report to Congress with a summary of these hearings has been six months in the making, and Chairman Nelson Lee Smith recently predicted that it would be another six months before it would be issued in the final form. In accordance with the new direction of the political winds, as expressed last November in the elections, it is now generally believed that the report will be "mild" and that it will be confined largely to a recapitulation of the factual information gathered. The commission seems even to have encouraged the expectation that it will make no new demands for additional jurisdiction over either production or end uses of natural gas.

The whispered suggestion that the FPC may decide to play dead for a while in respect to these two highly controversial fields of jurisdiction holds neither hope nor encouragement for the natural gas industry, if the regulatory body is permitted to continue with a rate making policy that will inevitably take the ownership of the industry out of the hands of private enterprise.

Investigate the Commmission

If this transfer of ownership is indeed the will of the people and the expressed intent of Congress, then the gas industry has no other course than to accept it as such, and resign itself to such managerial and operating chores as the state may still deem best left in the hands of technical experts.

But if it is not what Congress had in mind when it passed the Natural Gas Act, then it is time that the Congress itself take the steps necessary to insure that its mandates be carried out as intended, and its objectives no longer tortured into devious channels by administrative stealth and connivance.

We recommend in all earnestness that, just as the Federal Power Commission undertook an investigation of the natural gas industry for the guidance of Congress, it is now time for the Congress to undertake an investigation of the Federal Power Commission on its own account. Certainly a more thorough knowledge not only of the commissioners themselves, but of the background, the affiliations, and the social philosophies of the entire FPC staff would be of immense value to any Congressional committee in appraising the weight and significance of whatever report that staff may compile on natural gas matters.

Voice of the Underlings

It is well to remember that, from a practical standpoint, policies are often made by the staffs of the various government agencies. The underlings who wrote the Symington Report, for instance, were almost successful in promulgating a policy of selling or leasing the Big Inch lines for oil transmission in the face of the most profound evidence of its economic undesirability. Only the determination of the Slaughter committee to get to the bottom of the whole War Assets Administration debacle saved the lines

from being thrown into an expensive and predoomed social experiment.

Just so with the FPC. Leland Olds may have resigned as chairman (although still retaining his post on the commission for reasons which defy any rational explanation), but the Bureau of Rates and Research, with its nearly 400 employees, which functioned under him, and which proposes and rationalizes the policies that the commission seems always prone to adopt without question, remains. Still doing business at the same old stand, and under the same guiding principles of which Olds was an outstanding exponent.

Unless Congress intends to delegate by default, to the Federal Power Commission, the right to decide whether the natural gas industry is to be publicly or privately owned, it must take immediate and positive steps to investigate and arrest the promulgation of those policies that are in opposition to legislative intent.

A Constructive Step

THE action of the Oklahoma Corporation Commission in establishing a minimum wellhead price for natural gas from the Guymon-Hugoton field we view as a constructive step, despite our deep-seated aversion to having any state ordain by fiat something that industry should have been able to accomplish by voluntary action.

The new price of 7 cents per Mcf at a base pressure of 14.65 psi represents an increase of about 3.77 cents per Mcf in the field. The first to feel the benefits of the new prices will of course be the producers and royalty owners of the state. It is said that the value of reserves in place in Oklahoma are automatically increased by more than $200 million by the order. If the action is upheld by the courts, it will undoubtedly result in higher prices for natural gas throughout the entire gas-producing area, with Texas the next—and biggest—beneficiary.

To Promote Conservation

Testimony duplicated to the point of tedium during the Federal Power Commission's natural gas investigation was always on the theme that effective natural gas conservation waited on only one thing—higher prices for the gas—prices that would justify and make economically feasible the gathering and transportation of gas currently being flared around oil wells.

In viewing the Oklahoma action, the natural gas industry, and particularly the pipe line companies, should remember that with the exception of Louisiana they found the state regulatory bodies staunch and outspoken allies in their fight against further federal encroachment into natural gas regulation.

Judging from the wealth of evidence introduced, we believe that the FPC itself must have come to the conclusion that the crux of the conservation problem is one of price. And if this is the case, we can see no reason why the commission should not view favorably and accede promptly to the requests for revised rate schedules that higher wellhead prices will necessitate.

It is also to be assumed that the regulatory bodies in the gas-consuming states will make comparable allowances where the distributing companies are faced with higher city-gate costs for the fuel that they purchase for resale.

All the regulatory bodies, national and local, should recognize in this step by the Oklahoma commission one that is to the best interest of gas consumers as well as producers. As new and higher prices encourage conservation of gas already being produced from known fields, so in the long run they will also act as a spur and incentive to new explorations and discoveries where now only reasonable prospects exist.

Nor should the commission, federal or state, yield to any impulse to make new rate applications the occasion for promulgating new and lower permissible rates of return on gas operations. The rate of return question is one separate and distinct from field or city-gate prices paid for gas. To introduce it as a device to compel the gas industry to absorb the increased field costs would be to discourage effectively those natural gas companies who voluntarily raise their wellhead prices in fields and in states where no minimum prices have been established.

Had the gas transmission companies ever been given any justification in hoping for a square deal from the Federal Power Commission, we have no doubt that many of their field prices would have been increased long ago. If the Oklahoma Corporation Commission has succeeded in breaking through the vicious circle that has made the waste of natural gas economically mandatory in vast producing areas, the laudable trend must be fostered and not struck down by national or state regulation.

Women STILL Cook

JUST for its nuisance value, we suggest to the copy committee of the American Gas Association the consideration of a little news item coming out of the Pennsylvania Farm Show. The clipping we have goes on to tell about a farm wife, member of the Society of Farm Women of Pennsylvania, who won first prize for the number of jars of food put up during 1946—1800 quarts. Mrs. Sholley, the top canner, won handily, but the runners-up were no mean preservers either, one with 1360 quarts and another with 953 to her credit.

Then figures were presented for the top ranking county branches of the society: Cambria county, 10,950 quarts; Somerset county, 10,840 quarts; and Lancaster county, 9,496 quarts.

Gas association advertising over the years has been so eternally preoccupied with the obsessions that (1) women loathe and despise cooking and want nothing so much as a device that will enable them to escape from the kitchen, and (2) nobody over the age of 24 ever dreams of buying a new gas appliance, that we fear its impresarios may have lost sight of the tremendous traffic that the cookstove carries in a typical American home.

Great Gulf

A long time ago somebody in the industry, Paul Dorsey we believe it was, went around with his campaign based on something he called the art, or the joy, of fine cooking. We just got to thinking about the great gulf that has opened between that approach and the present day cult that feaures only the kitchen. A kitchen in which the gas appliances can hardly be distinguished from the built in cabinets, and the culinary queen is a Conover model, and the homelike atmosphere in the illustrations is provided by a kiddie car on the floor and a bountiful showing of a tomato and two carrots on the linoleum topped counter. For anyone to dream of canning 1800 quarts in one of these photogenic, sterile and immaculate interiors would be as unthinkable a sacrilege as wiping one's hands on the guest towel.

We just thought it wouldn't hurt for the copy committee to know that there is still a lot of cooking going on in the world in spite of the industry's efforts to put an end to it.

Highlights

● The telephone number of the American Gas Association's New York headquarters has been changed to MUrray Hill 3-8202.

● The Federal Power Commission's plan to permit improvements and extensions of facilities of natural gas companies without certificate hearings (see page 58) is regarded as a sincere effort on the part of the commission to ease the load on the overburdened gas docket and to speed up the construction of new facilities required to meet increasing demands for natural gas.

● Northern Natural Gas Co.'s plan for emergency curtailment of firm deliveries of natural gas to customers in Nebraska, Iowa, Minnesota and South Dakota was accepted by the Federal Power Commission, effective as of Jan. 21. The plan is intended to protect essential services on Northern Natural's system during the 1946-47 heating season, and expires June 1, 1947. The company's present transmission system is capable of delivering only about 90% of the estimated firm requirements when very low temperatures prevail over the area.

● The Senate Armed Services Committee showed no disposition to consider a bill presented by Senators O'Mahoney and Revercomb which would have forbidden the War Assets Administration to dispose of the Big Inch pipe lines until 90 days after Feb. 3. The committee tabled the bill by a vote of 6 to 1.

● Col. P. A. Frye, former executive director of natural gas conservation for Louisiana, has been appointed director of the Department of Highways for the state, succeeding D. Y. Smith.

● William W. Bodine, financial vice president, The Penn Mutual Life Insurance Co., commenting recently on a study of financial statistics of gas and electric operating utilities, expressed the opinion that "manufactured gas companies, as a whole, pursue conservative financial policies, have a reasonably satisfactory outlook, and should be able to continue to raise new money, whenever required, at a cost comparing favorably with that obtained by their competitors." Facts supporting his statement are: (1) Beginning in 1939, the downward trend of gas sales and revenues definitely reversed, and is still rising in 1946; (2) that further successful promotion of the use of manufactured gas for househeating purposes will continue this upward movement in the postwar period; (3) that while in the househeating field the industry will continue to meet strong competition from coal and oil, increased prices of these fuels has and may well continue to better the competitive position of manufactured gas if no important increases in rates are required.

●The receding deadline for the Federal Power Commission's final report on the natural gas investigation has now been moved to July, 1947, according to a prediction by FPC Chairman Nelson Lee Smith testifying before the House Committee on Interstate and Foreign Commerce. In December, 1946, B. N. Behling, in charge of the natural gas investigation for the commission, had predicted that the preliminary report would be ready in January, with the final report to follow approximately a month later.

● Col. Ernest O. Thompson became chairman of the Texas Railroad Commission in January, succeeding Olin Culberson.

● A $200 million, five-year development program has been announced by the Consolidated Edison Co. of New York, Inc. The 1947 budget for new construction will run to $61,500,000; of this $9,000,000 is to be spent in expansion of gas facilities in the New York Boroughs, and $1,300,000 on additions to properties in combination gas and electric service.

● A resolution introduced by Representative Walter of Pennsylvania is designed to delay the sale of the Big Inch pipe lines until six months after the Federal Power Commission makes its final report on the Natural Gas Investigation, G-580. The Walter resolution has been referred to the House Commerce Committee.

● Each of Texas' 254 counties currently is producing or has produced oil or gas, or has land under lease for oil and gas development, a new map prepared January 1 by the Texas Mid-Continent Oil and Gas Association shows. Texas oil and gas counties number 169, while former petroleum counties total 17. The 68 others have land leased for oil and gas exploration and development.

● Walter S. Hallanan of Charleston, W. Va., president of the Plymouth Oil Co., has been elected the permanent chairman of the National Petroleum Council. This is an industry advisory group named by the Secretary of the Interior at the suggestion of President Truman in June, 1946.

GAS makes the headlines!

On Sunday, May 26, 1946 this article appeared in the New York *Herald-Tribune:*

1944 Challenge Spurs Research In Gas Making

Excerpt in 'Moody's Bond Survey' Prods Industry Into Rewarding Project

One day in 1944, at a meeting of the American Gas Association, Ernest R. Acker, association president and president of Central Hudson Gas & Electric Co., of Poughkeepsie, N. Y., astounded fellow members by reading an excerpt from "Moody's Bond Survey" which was hardly complimentary to his audience and not a little challenging.

The manufactured gas industry, according to the report, had "unimpressive" prospects. The inability of the industry to show improvement was attributed to the fact that it had failed "to develop new uses for its product or stimulate wider usage by existing customers, particularly domestic."

That was sufficient stimulus, events proved, to convince any doubters remaining in the industry of the need of an expanded program of research into matters affecting gas production, transmission and utilization. Such a program was subsequently financed, through contributions totaling $600,000 annually, from throughout the industry, and is today nearly two year old. The results, according to a recent issue of "Gas," have long since more than justified the outlay.

Numerous Projects

Among projects already undertaken, or scheduled to be undertaken in the program, are numerous explorations promising consumers more efficient, more cleanly and more healthful household appliances.

In the field of gas utilization, the association is investigating, among other things, the problem of the venting of room heaters of kitchen ventilation and of home humidity control. Other investigations are concerned with the design of gas ranges, water heaters and other appliances. When definite improvements are arrived at they are brought to the attention of appliance manufacturers through periodical technical conferences.

Process Improved

Research into possible ways of improving production of gas is devoted to refinement and improvement of existing gas manufacturing processes, and inquiry into new fields of hydro-carbon reactions for the cheaper production of manufactured gas. Plant tests at various manufactured gas works have brought about an exchange of recommendations resulting in obtaining increased capacities with existing equipment. Still other projects are aimed atp roducing better by-products of gas manufacture particularly of tar.

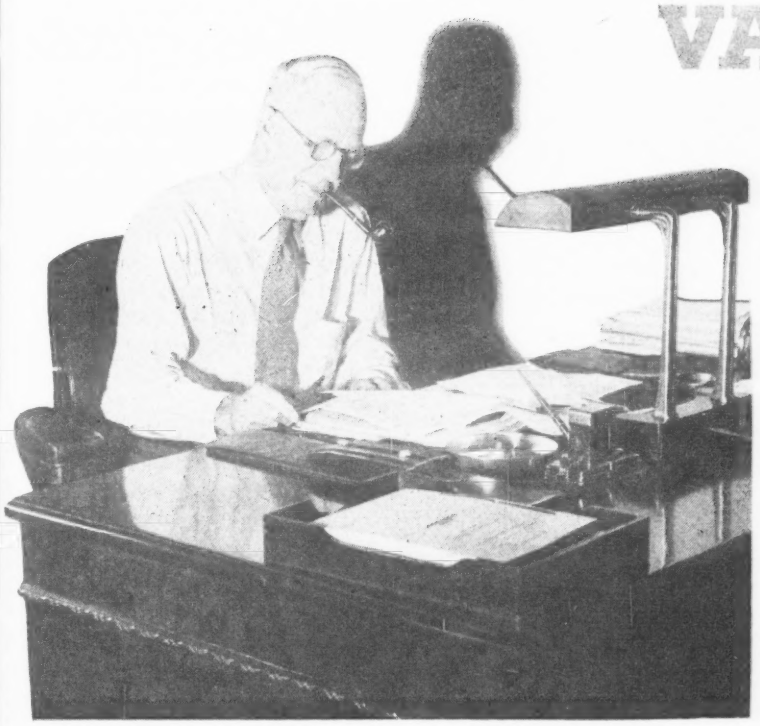
Of equal importance to the gas utilities which participate in the program is the element of protection these projects give them as changes occur in the marketing of natural gas by its producers. New developments in hydro-carbon chemistry, such as the manufacture of gasoline from natural gas, have indicated possible changes both in the areas in which the greatest demand will be concentrated and in the price of the natural product.

As these developments occur, the gas utilities, "Gas" notes, "must of necessity be prepared to offer methods and equipment that will make for the most efficient use of the fuel, which one day may cost them and their customers much more per thousand cubic feet. For this reason, if for no other, and for the companion implication that the very existence of the gas utility, industry may well hang on developments now only subjects of laboratory and field studies, the industry knows that its research program is here to stay."

This news story, quoting from Elliott Taylor's article, *"Accent on Research,"* was also reprinted by the American Gas Association and distributed to its members—further evidence of the way

GAS editorial thinking leads the field

THE GAS INDUSTRY'S VANISHING RATE BASE



By SAMUEL H. CROSBY
Counsel, E. Holley Poe and Associates

DO the American people want to nationalize the natural gas industry? Would Washington government do a better job than private industry supplying your kitchen with gas? These are not academic questions but current problems tangibly posed by the Federal Power Commission.

A commission press release shows capital invested in plant by natural gas companies on Oct. 1, 1946, to be $1,878,686,997, with book reserves for depreciation and amortization totaling $689,590,316. The commission considers these reserves as capital returned to the owners of the business and their "net investment" shrinks accordingly from year to year. This "vanishing rate base" yields diminishing returns to the owner as his "net investment" is progressively reduced.

The commission has been somewhat submerged since V-J Day by a deluge of certificate applications. When the crest is passed there is good reason to expect fulfillment of the commission's purpose, expressed recently to Congressional Appropriations Committees, assuming the form of a general rate reduction campaign. The pattern for ultimate control of natural gas rates is set by the commission in its order to Chicago District Electric Generating Co. dated July 16, 1941[1] providing for *automatic semi-annual rate revisions.* For refreshment of short memories we quote:

"Respondent . . . shall . . . revise its rates and charges . . . (to) provide a net operating income . . . equal to a 5½% return on the (net investment) rate base . . . *and semi-annually thereafter for the cost of additions* . . . and for change in depreciation reserve." (Italics supplied.)

Hargrove's Summary

Near the conclusion of the commission's recent Natural Gas Investigation Mr. R. H. Hargrove, now president of the American Gas Association, concisely summarized this vital economic problem which seems too little understood. The commission's administrative policies, upheld by friendly courts, may lead directly and quickly to involuntary liquidation of stockholder equities and confiscation, as Mr. Hargrove so clearly shows. His warning should be given fullest consideration by every person having interest or responsibility in public utilities, and cannot be too often reiterated.

In the establishment of the rate base the question of whether the accrued depreciation should be deducted is also of paramount importance. If the deduction is proper, to fail to recognize this fact would be unduly to penalize the consumers. On the other hand, if the deduction is improper, to insist upon its being deducted results in confiscation.

In the light of the importance of this problem and the attention that has been given to it, it is difficult to understand the confusion that exists. Perhaps the confusion exists because the manner in which the rate base and the accrued depreciation are determined controls the propriety of the deduction. Certainly if the rate base is established as the reproduction cost new and the accrued depreciation is established by observation, then the accrued depreciation should be deducted.

With equal certainty, if the rate base is established as original cost, or adjusted original cost, and the accrued depreciation established by the service-life method, then the accrued depreciation should not be deducted. The important point to be remembered is that under this service-life method the depreciation is accrued not for the purpose of returning invested capital to stockholders, but for the purpose of establishing a fund to maintain the physical integrity of the property

[1] In re Chicago District Electric Generating Corp., IT-5500, 2 FPC 412 at 430.

QUOTING THE FPC

- ***"Respondent . . . shall . . . revise its rates and charges . . . (to) provide a net operating income . . . equal to a 5½% return on the (net investment) rate base . . . and semiannually thereafter for the cost of additions . . . and for change in depreciation reserve."***
- ***"There is no principle or concept of regulation, either in law or in fact, requiring consumers to pay in perpetuity a return on the total capital initially embarked in the enterprise when such capital is periodically returned through depreciation charges and in the absence of reinvestment of such capital in the utility's operative property. Such return of capital terminates the consumer's obligation."***

so that it may continue to render adequate service to the consumers without interruption. Accumulated depreciation funds may not be disbursed to the stockholders but are trust funds for specific purposes. To make the deduction under this latter condition is to confiscate the property of the company, day by day, and bit by bit, for the use of the consumer. I would like to add that I am familiar with the commission's practice, in some instances at least, of approving this deduction, and I appreciate the gravity of my statement. The seriousness of the situation compels me to make the statement.

To prove my point I submit that in a static property whose plant account is unchanging, the ultimate result will be to extinguish the rate base (except for working capital and other minor items), thereby completing the transfer of the property from the company to the consumers. Legal title would, of course, remain in the company, but a sort of trusteeship would prevail. Can it be successfully argued that such was the result intended by Congress in the enactment of the Natural Gas Act? I do not think so.

The practice in this respect that the commission has heretofore approved is far too serious in its immediate results and in its implications to permit it to become a fixed policy. It should be forthwith reviewed with care and thoughtful consideration, and I believe that this commission will do so.

Mr. Hargrove's confidence in a willingness of the commission to review and revise its depreciation policies is not shared by those familiar with the regulatory processes firmly established and approved within the commission. Master strategies have been planned and successfully guided through the courts. Under the Power Act the New River case converted to navigable waters of the United States, potentially subject to commission jurisdiction, every watercourse which in freshet will float a log or flatboat. The section of the Natural Gas Act specifically exempting from regulation the production and gathering of natural gas has been adroitly construed with court approval to apply only to physical aspects of production such as well spacing.

Thus, the commission is firmly entrenched and its policies and powers have been very fully defined. The fact that they have not been so far fully exercised is due in part to exigencies of war and doubtless in part to a prudent discretion. In the process of establishing the boundaries of its regulatory domain stakes have been driven one at a time and organized industry resistance thus avoided. Having successfully progressed with moderation, the foundation for industry-wide orders has been well laid. For illustration, an order of general application might be issued requiring periodic, automatic rate-revisions as in the case of the Chicago District Electric Generating Corp.

Safe Harbor Case

COMING back to the problem posed by Mr. Hargrove we have further conclusive and current evidence of the commission's basic purposes in its 80-page opinion adopted Oct. 25, 1946, in the second Safe Harbor rate case[2] in which the commission declares:

"There is no principle or concept of regulation, either in law or in fact, requiring consumers to pay in perpetuity a return on the total capital initially embarked in the enterprise *when such capital is periodically returned through depreciation charges* and in the absence of reinvestment of such capital in the utility's operative property. *Such return of capital terminates the consumer's obligation.*" (Italics supplied.)

A proceeding against Safe Harbor was brought prior to 1940 and on grounds not relevant to this discussion appeal was successfully taken from orders entered then. In the second case the commission requires the company to adopt straight-line depreciation charges. The trial examiner's report was filed more than a year ago and although personnel of the commission has undergone change the new members are completely in line with past policies, now more fully discussed and revealed. The following statement should resolve any doubts:

"Since this commission's previous decision, much study has been given to the depreciation question and, in addition, we have had the benefit of the comprehensive reports of the Committee on Depreciation of the National Association of Railroad and Utilities Commissioners, which were made after diligent inquiry and support of the straight-lined method. In all of this commissioner's rate cases, except the earlier case involving Safe Harbor and the interim order (but not the final order) in the *Natural Gas Pipeline Co. of America* proceeding, it has *required the straight-line method to be used, and on review its orders have been affirmed.*" (Italics supplied.)

In this statement there is a subtle element of self-praise. As is well known to informed observers, two brilliantly dominant and persuasive logicians representing the Federal Power Commission have used the NARUC as their effective forum and themselves have largely shaped the form and substance of the NARUC reports.

Government Ownership?

AN outstanding contribution to current consideration of the depreciation problem was recently made by Dr. Henry Earle Riggs, professor emeritus and former dean of the School of Engineering at the University of

[2] In re Safe Harbor Water Power Corp., IT-5914, Opinion No. 143.

MR. CROSBY'S provocative article on the "Vanishing Rate Base" is a timely challenge to FPC'S rate-making policies which ought to be considered by the regulated utilities, both gas and electric, subject to FPC regulation. Obviously, as Mr. Crosby points out, effective relief can come only from Congress.

Samuel H. Crosby, lawyer in charge of the Washington office of E. Holley Poe and Associates, is the author of a "Survey of Federal Regulations of the Natural Gas Industry" and a statistical study of "The Natural Gas Act and its Administration." These carefully documented studies were prepared for the Natural Gas Industry Committee and presented in the recently concluded Natural Gas Investigation of the Federal Power Commission.

A native of Iowa and a graduate of Grinnell College, he was for many years engaged in the general practice of law, principally in the Middle and Southwest. He is a member of the American Bar Association and served five years as a trial examiner with the Federal Power Commission, leaving it to join Mr. Poe's organization in 1944.

- ***"In the establishment of the rate base, the question of whether the accrued depreciation should be deducted is . . . of paramount importance. If the deduction is proper, to fail to recognize this fact would be unduly to penalize the consumer. On the other hand, if the deduction is improper, to insist upon its being deducted results in confiscation."***
- ***"The important point to be remembered is that under (the) service-life method the depreciation is accrued not for the purpose of returning invested capital to stockholders, but for the purpose of establishing a fund to maintain the physical integrity of the property so that it may continue to render adequate service to the consumers without interruption."***
- ***"To make the deduction . . . is to confiscate the property of the company, day by day, and bit by bit, for the use of the consumer."***

R. H. Hargrove, now president, American Gas Association, in his testimony before the Federal Power Commission during its Natural Gas Investigation.

Michigan. In a series of three brief papers published in "Public Utilities Fortnightly"[3] Dr. Riggs reviews the historical milestones of utility regulation with sage analysis of the "new chapter in the regulation of utility rates," spear-headed by the Federal Power Commission, ratified and firmly established by the Supreme Court. Dr. Riggs presents relevant facts and figures fully substantiating the views expressed by Mr. Hargrove and concludes that the American people squarely face the question: "Are we ready for government owenrship?"—of the telephone, electric, and gas industries.

During the first five years after the Federal Power Commission was established as an independent agency of government, with five appointive members,[4] the commission exercised relatively limited powers. Its principal duties were prescribed by the Federal Water Power Act[5] and it was not until the adoption of the Public Utility Act of 1935[6] that regulatory jurisdiction of major importance was vested in the commission. The Natural Gas Act[7] gives the commission even more comprehensive powers than does the Power Act, in broadest terms of delegated legislative authority, without appropriate statutory prohibitions or basic standards for guidance. The nature and structure of the Natural Gas Act conferring upon the commission virtually unlimited rule-making power has fostered the commission's bold approach to fundamental economic problems of government.

In the genesis of its concepts the commission may have found a guiding influence derived from the Water Power Act of 1920. The enactment of this law resulted from years of determined effort led by conservationists. These men, including Gifford Pinchot, were long range planners, interested in establishing orderly procedure to convert the power of falling water to electricity. Their thesis and purpose was to bring about controlled and licensed initial development of hydroelectric potentials on navigable streams by private enterprise, but with an option in government to recapture licensed hydro projects after 50 years. Private enterprise might enjoy the profits during that time with the provision that the pioneer should receive a fair return to his "net investment." any surplus above a fair return to be applied on retirement of the original investment. At the end of the 50-year period, if government sees fit to exercise its option to recapture, whatever part of the investment has not been recouped by the pioneer from earnings above a fair return the government will pay.

When this law was passed, hydroelectric development had barely commenced. All conditions governing hydro projects were expressly stated in the law and the applicant for a license to build a dam made a written contract with the government accepting those conditions. Thus, hydro-pioneers knew what they were in for before they started.

The Federal Power Commission is administering the Natural Gas Act as if it included the "net investment" and capital retirement provisions written clearly into the Water Power Act. As Mr. Hargrove has so clearly stated, the depreciation policies of the commission unless revised must inevitably "extinguish the rate base . . . thereby completing the transfer of the property from the company to the consumers. Legal title would, of course, remain in the company, but a sort of trusteeship would prevail" — and it may be added that when this has been accomplished the nominal owners, still holding legal title, are specifically forbidden by the act itself to abandon service unless permitted by the commission when the "available supply of natural gas is depleted to the extent that the continuance of service is unwarranted."

Two factors have particularly contributed to the easy encouragement of

[3] "The Depreciation Problem," "Public Utilities Fortnightly," Vol. 38, Nos. 6, 7 and 9.

[4] 46 Stat. 797, Approved June 3, 1930.

[5] 41 Stat. 1063, 16 U. S. C. 791-823, Approved June 10, 1920.

[6] 49 Stat. 838, 16 U. S. C. Supp. IV. 791a-825r, Approved Aug. 26, 1935.

[7] 52 Stat. 853, 15 U. S. C. 717-717w. Approved June 21, 1938.

depreciation charges by the companies on a scale so high that after these few years the accumulated book reserves aggregate approximately one-third of the total investment in gas plant. The interstate pipe line business, developing rapidly after 1926, was then definitely full of risk. Management wisely and generally planned recovery of its investment within twenty years and set up book reserves accordingly. Furthermore, the business was conceived from the beginning to be a "wasting asset industry" in which the commodity dealt in would be exhausted long before the pipe lines and compressors would be worn out.

It will be recalled that the Natural Gas Pipeline Co. originally assumed that its reserves would be exhausted by 1954, and it was in that company's rate case that Mr. Chief Justice Stone, speaking for the Court, held that:

> " . . . the purpose of the amortization allowance and its justification is that it is a means of restoring from current earnings the amount of service capacity of the business consumed in each year. Lindheimer vs. Illinois Tel. Co. 292 U. S. 151, 167. When the property is devoted to a business which can exist for only a limited term, any scheme of amortization which will restore the capital investment at the end of the term involves no deprivation of property . . . The Constitution does not require that the owner who embarks in a wasting-asset business of limited life shall receive at the end more than he has put into it."

When the interstate pipe line business started in a big way in 1926 our national wealth of natural gas reserves was considered to be 23 trillion cu. ft. and the known consumption that year was 5.71% of that estimate. Twenty years later, according to Dr. E. DeGolyer's testimony in the Natural Gas Investigation, our known reserves are more than 144 trillion cu. ft. In 1944, as consumption figures of the Bureau of Mines show, the entire national consumption was only 3.42% of the estimates of that year. It has long been obvious that first estimates of the useful lives of interstate pipe lines were too conservative and that so long as gas is produced in the Southwest the major lines conveying gas to established markets will be supplied through extensions to new production.

In the light of testimony from industry experts confirmed by Bureau of Mines experts appearing in the Natural Gas Investigation, it is entirely reasonable to expect that before the exhaustion of natural gas in various areas, manufactured gas from coal, produced in great volume at the coal beds, may profitably be transported through the same lines now used for natural gas, with the flow reversed to supply southwestern and intermediate points with a satisfactory pipe line substitute of high quality at low cost.

TURNING now to practical aspects of some of the current problems of the too-much-regulated natural gas industry, it seems generally believed that the oil industry and the natural gas industry may achieve a united purpose to evict the Federal Power Commission from its intrusions into the production field. Honeyed words of reassurance in official statements of the commission have fallen upon skeptical ears. There is no help in sight from the courts and the industries' sole hope lies in help from Congress. The oil industry is inextricably involved with the business of gas production and is well aware of the fact. Various amendments to the Natural Gas Act of a comprehensive nature are under consideration and we may safely assume that at least several will be offered soon after the 80th Congress convenes, all definitely aimed at statutory restriction of commission authority.

Small reliance seems to be placed upon prospective gains from the new Administrative Procedure Act. It may be some years before the courts have established its validity and scope. Perhaps some prompt amendment of that act itself might assist in opening the doors of the federal courts, now firmly closed to the gas industry by the finalities of the Natural Gas Act limiting issues on appeal.

Public ownership of all important energy resources was persistently advocated by influential members of the New Deal administration. But this objective cannot be honorably achieved by devious means. If public ownership of the natural gas industry and expropriation of gas reserves is desired it is reasonable to expect the Congress to adopt equitable laws to that end, consistent with the basic rights of private property. If the 80th Congress does not favor public ownership of the natural gas industry it should amend the Natural Gas Act, so clearly defining depreciation policies as to free the industry from its existing jeopardies and uncertainties. Only the Congress can relieve this situation.

A LEAF may profitably be taken from the book of laws of the Province of Alberta, Canada. There the provincial statutes deal directly and explicitly with the depreciation problem of natural gas companies, which are public utilities subject to regulation by Provincial Board. The relevant provisions of the law are as follows:

> "The board, either upon its own initiative or upon complaint in writing, shall have power by order in writing made, after notice to and hearing of the parties interested:
>
> * * *
>
> ". . . to require every proprietor of a public utility
>
> * * *
>
> ". . . to carry, whenever in the judgment of the board it may reasonably be required, for the protection of stockholders, bondholders, debenture holders or creditors, a proper and adequate depreciation account in accordance with such rules, regulations and forms of account as the board may prescribe, and the board shall from time to time ascertain and determine, and by order in writing after hearing, fix proper and adequate rates of depreciation of the property of each proprietor of a public utility, in accordance with its regulations or classifications, *which rates shall be sufficient to provide the amounts required over and above the expense of maintenance to keep such property in a state of efficiency corresponding to the progress of the industry*, and each proprietor of a public utility shall make its depreciation accounts conform to the rates so ascertained, determined and fixed, and *shall set aside the money so provided for out of earnings and carry the same in a depreciation fund, and the income from investments of moneys in such fund shall likewise be carried in such fund, and this fund shall not be expended otherwise than for depreciation, improvements, new constructions, extensions or additions to the property of the proprietor of that public utility*." (Italics supplied.)

The purpose of the Alberta statute is clearly to assure and preserve sound financial structures in the natural gas industry, and the accumulation and safeguarding of resources and reserves adequate for replacements and extensions necessary to efficient service. The act contains no indication of concern for the early retirement of invested capital. Under its requirement that a true sinking fund be employed the annual charge to consumers for depreciation is materially less than comparable charges required by the Federal Power Commission under our Natural Gas Act. Under this statute involuntary liquidation of capital invested in a gas utility through the device of excessive depreciation charges is impossible.

EMPLOYEE GRIEVANCES
And The Community

Employees' gripes, which circulate rapidly, may do a company irreparable harm in its own community. An outline for a grievance procedure which will remove them at their source is presented here.

By O. C. COOL
Director, Labor Relations Institute, New York.

EMPLOYEE grievances are a form of word-of-mouth advertising—in reverse. There is this to be said about a gripe: be it justified or unjustified, it soon gets around. Human nature being what it is, the wrong people are often the first to hear about it—not the foreman or the supervisor, but the other employees in the department, the folks in the shipping room, the drivers on their trucks. Papa tells Mama that he isn't receiving fair treatment in the plant, and Mama tells the bridge club, the Ladies Aid, and the counterman at the store. Soon the whole community is buzzing with the news.

There is no exaggeration in this picture, unless it be the fact that *all* grievances are exaggerated once they get beyond the plant. A fellow worker can usually size up a complainer, and can tell whether or not he is stretching facts in his favor. The malingerers and the chronic whiners are known and recognized by their co-workers. Some people just *like* to complain; the folks they work with know about it, and discount what they say. But the rest of the community lacks this perception. A gripe that even the most belligerent shop steward would spot as a phony may seem Gospel truth on Main street.

Anticipate Gripes

There is only one sure way to stop a complainer (and the bad advertising he vocally strews about) and that is by handling his grievance on the spot—right away, as soon as it happens. Better still, anticipate the gripes which may come up, and prevent them from happening.

The community angle, of course, isn't the only one to consider when appraising the costliness of grievances. Employee turnover is a measurable gauge—and in American industry during one typical month, that of July, 1946, eight times as many workers quit as were laid off or discharged. Some of this, undoubtedly, can be traced to the general postwar restlessness, or to peculiar local or trade conditions, but I will wager that employee grievances were at the bottom of most. In spite of all the lessons to the contrary that were learned by business during the war, relatively few companies follow any formal procedure in the handling of grievances. I say "follow" advisedly, because there is a big difference between the number of those companies which have grievance clauses in their union contracts and those, on the other hand, which make no consistent effort to nip complaints in the bud — or to prevent them from budding.

There are many peculiar attitudes on the part of management in regard to grievance machinery. "We have enough headaches as it is, without soliciting them through a formal grievance system," one executive stated. His position, of course, was analagous to saying that sprinkler systems and extinguishers cause more fires! "We're too small," said another. "Our relationship with our employees is practically on a family basis. Anybody who has anything to complain about can walk into the president's office any time and unload his troubles." Investigation in the latter instance showed that *nobody* complained, for obvious reasons. But the quit rate was the highest in that industry for that area.

MR. COOL is well known among industry executives. Having negotiated over 500 union contracts since he first became engaged in labor relations work, he now heads the Labor Relations Institute, an organization which he founded, and which has grown in less than nine years to a service used by 7500 companies in 75 industries.

The author is not a newcomer to the pages of GAS. His article on the techniques of collective bargaining, from the employer's standpoint, "The Gas Company Executive at the Bargaining Table," appeared in the August, 1946, issue.

Benefits of Procedure

Actually, there is no valid reason for being without a formal grievance procedure. The reasons for employing one are numerous, including:

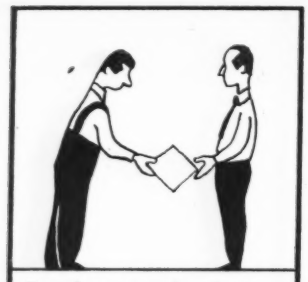
1. Better community relations.
2. Removal of friction between subordinates and bosses.
3. Reduction of turnover due to abnormally high quit rate.
4. Higher production per man hour, due to improved employee morale.
5. Lower operating costs traceable to higher production.
6. A friendlier spirit all around.

One of the most important benefits is the stabilizing effect of improved employee relations. When complaints are handled in an impersonal, routine way, as rapidly as they arise, quibbling, back-biting and contention disappear. Morale goes up, and the company's ability to recruit the better type worker rises with it. As one client of the institute said, a year ago: "We never would have installed our present effective Retirement Benefit Plan if we hadn't first overcome the problem of grievances. With our oldtime high turnover, we never could have sold the employees on participating in the plan. But now we have a good, steady workforce, and can do so much more for our workers because of it."

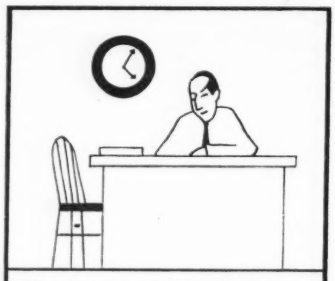
How to Handle Grievances

The essentials of a good grievance procedure are simple. In essence, they consist of the following points:

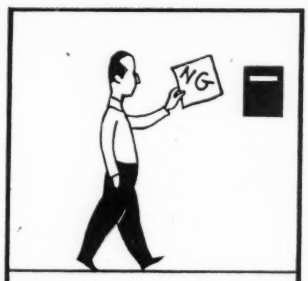
EMPLOYEE GRIEVANCES



Employee who has a grievance takes it to his supervisor.



The foreman has 24 hours in which to make his decision.



The decision reached, his report is forwarded to the proper executive.

If the employee is dissatisfied with the decision, he may file an appeal. To show good faith, the supervisor should help him make it out.

1. Give the employee the right to complain to his foreman or supervisor about anything that is bothering him.
2. Implement the supervisor's responsibility for hearing the worker's complaint and reaching a prompt decision, or, failing the latter, for setting a time in the reasonable future when the decision can be made.
3. Provide for a written report on all grievances, so that no supervisor can possibly "bottleneck" gripes and give management the impression that nothing ever goes wrong in his department.
4. Provide for an appeal from the foreman's judgment. This is of particular importance, because it ends the frustrating attitude of "No use telling *him* our our troubles—he never does anything about them!"

Incidentally, appeals *help* the foreman, rather than hurt him, in the eyes of management, which likes to "back up" the men on the lower echelons, but seldom has any chance to do so.

System In Action

Here is the way such a system works in action:

1. The employee who has a grievance takes it up with his foreman in person.
2. The foreman, after hearing the other's story and making a decision, is required to make out a grievance report, which must be sent to a responsible member of top management within 24 hours after the decision has been rendered.
3. Provide for a written report on all grievances, so that no supervisor can possibly "bottleneck" gripes and give management the impression that nothing ever goes wrong in his department.
4. The appeal then goes to the company superintendent, the works manager or the labor relations head or, if the company is a small one, to the employer or proprietor.
5. If the appeal goes against the supervisor, it is approved technique to let the foreman himself break the news to the employee. In this way the foreman is given a chance to assure the worker that no bad feelings or grudges are being entertained.

The deadliest enemy of good grievance procedure is time-lag. Delay compounds the irritations felt by the worker who has made a complaint, and each added day of suspense increases his suspicions and impatience. It is advisable, therefore, to establish a deadline for each step. Then everyone —worker, supervisor and manager— knows what to expect in the way of waiting time before a grievance is settled.

Workers Must Understand

Although the employees are the prime beneficiaries of the grievance system, experience has shown over and over again that they must be kept continually aware of its existence, lest it die for lack of use. I do not mean that workers must be taught to feel aggrieved, but rather than they must continually and consistently be shown that when something that annoys or troubles them *does* come up, there is a dependable, face-saving way to get them straightened out.

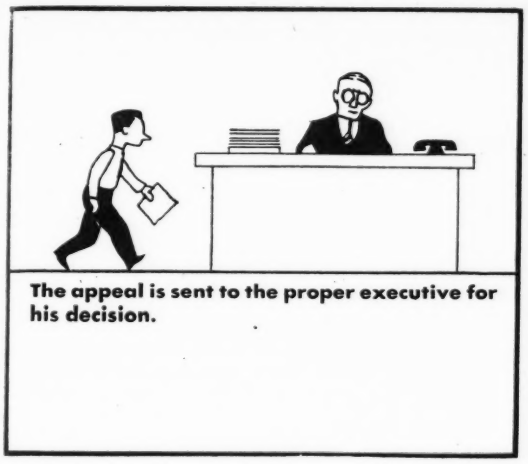
Oddly enough, many workers *feel* aggrieved without being able to put their finger on the reason. They even may blame the wrong things for their "hurt" condition. Again, they themselves may be acting unfairly to others (by lingering too long in the rest room while others try to keep up the pace, for example). If proper grievances are publicized within the plant, in a way that precludes embarrassing any individual, the entire group gains. That is why some companies feature a "gripe column" in their employee publications. Workers are invited to submit their complaints in question form, with no names mentioned. Typical questions are then published, along with answers from the management.

Union Practices on Grievances

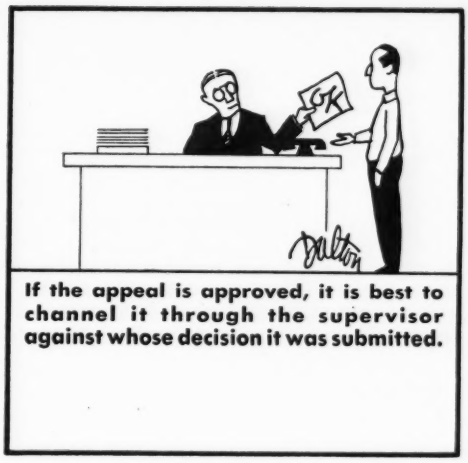
The chief difference between handling grievances in a non-union shop and one that is organized is that the employee, in the latter case, is represented by the shop steward—on the supervisory level—and by the business agent in the event of an appeal. Where both sides fully understand each other's rights, responsiblities and duties, and where the contract between the employer and the union contains adequate safeguards against abuses—such as when the steward spends too much of his employer's time discussing grievances, or when the business agent takes advantage of the occasion to collect dues or indulge in organizing activities—the grievance procedure is an effective instrument that can prevent unauthorized "quickie" strikes and stoppages.

Here are two institute-recommended clauses which, if inserted in the contract with the union, will protect the employer against abuses of the grievance procedure by stewards, and which have the additional merit of "building up" the foreman's job:

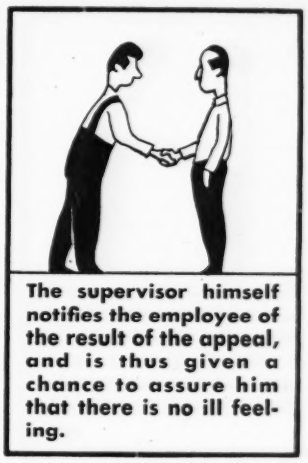
1. *Union representatives shall handle grievances only within their respective jurisdictions. They shall report to and obtain permission from their immediate supervisors when it becomes necessary to leave their work for the purpose of handling grievances, make known their destination, and re-*



The appeal is sent to the proper executive for his decision.



If the appeal is approved, it is best to channel it through the supervisor against whose decision it was submitted.



The supervisor himself notifies the employee of the result of the appeal, and is thus given a chance to assure him that there is no ill feeling.

port again to their immediate supervisors at the time of their return. Immediately on entering a department other than their own to investigate or adjust a grievance, they shall notify the supervisor of that department of their presence and purpose.

2. *In cases where stewards are required to lose time from their regular work, the foreman shall be given sufficient notice in order to make necessary replacements, if possible. In cases where absence of stewards will cause stoppage of machine production, or idleness of other workers, a suitable time for such absence must be agreed upon with the department foreman during the work shift in which the grievance arises.*

Avoid NLRB Violations

Under the rules of the National Labor Relations Board, certain prohibitions and restrictions must be observed. For example:

1. An employer cannot set up a grievance procedure different from the one agreed upon between the company and the union in collective bargaining.
2. All grievance systems must be so set up that the union plays a major role in the administration of the machinery.
3. While the worker, under the Wagner Act, is permitted to present his grievance individually to the company, settlement of the complaint must be a two-way business between the union and the management. In other words, the union must not be by-passed.
4. Unions must represent both union and non-union employees within the unit when dealing with grievances. This is contrary to the erroneous but widespread feeling that a steward can represent only union members.

Particularly in the case of large companies, but wherever a union is involved, the final stage in grievance procedure is generally arbitration of some type. The decision of the umpire or referee is final and binding on both sides. Experience has shown the value of limiting arbitration to certain areas of dispute—such as wages, hours or working conditions covered by the contract, or differences over the application or interpretation of the provisions in the agreement.

Another wise precaution is for the employer to require that all unsettled disputes be brought to arbitration within, say, 15 days after management and the union have been unable to reach a satisfactory settlement. With such a stipulation, the company will not have to worry about long retroactive payments hanging over its head because of delayed arbitration. Furthermore, this device discourages the practice of "accumulating grievances" on the part of the union—i. e., saving them up until a number of them can be settled at one time, and for one arbitration fee. The 15-day clause encourages friendly settlements between the company and the union, because the latter will resort to arbitration less, for economy reasons.

Because of the public interest which surrounds arbitration proceedings, there is a distinct community relations aspect to this step in the grievance procedure. For this reason, many companies have found it good practice to induce a local judge, the mayor of the town or some other prominent official to serve as an arbitrator or to appoint one to serve in his stead. Other sources of arbitrators are the State Mediation Board, the American Arbitration Association and the United States Conciliation Service.

In closing, let me add this. It is impossible—not merely inadvisable—to disregard the community when adopting any policy within your plant, and particularly those policies which involve employee relations. The elimination of employee grievances is the first step in assuring good community relations.

Stanolind Plans Construction of Synthol Plant in Hugoton Field

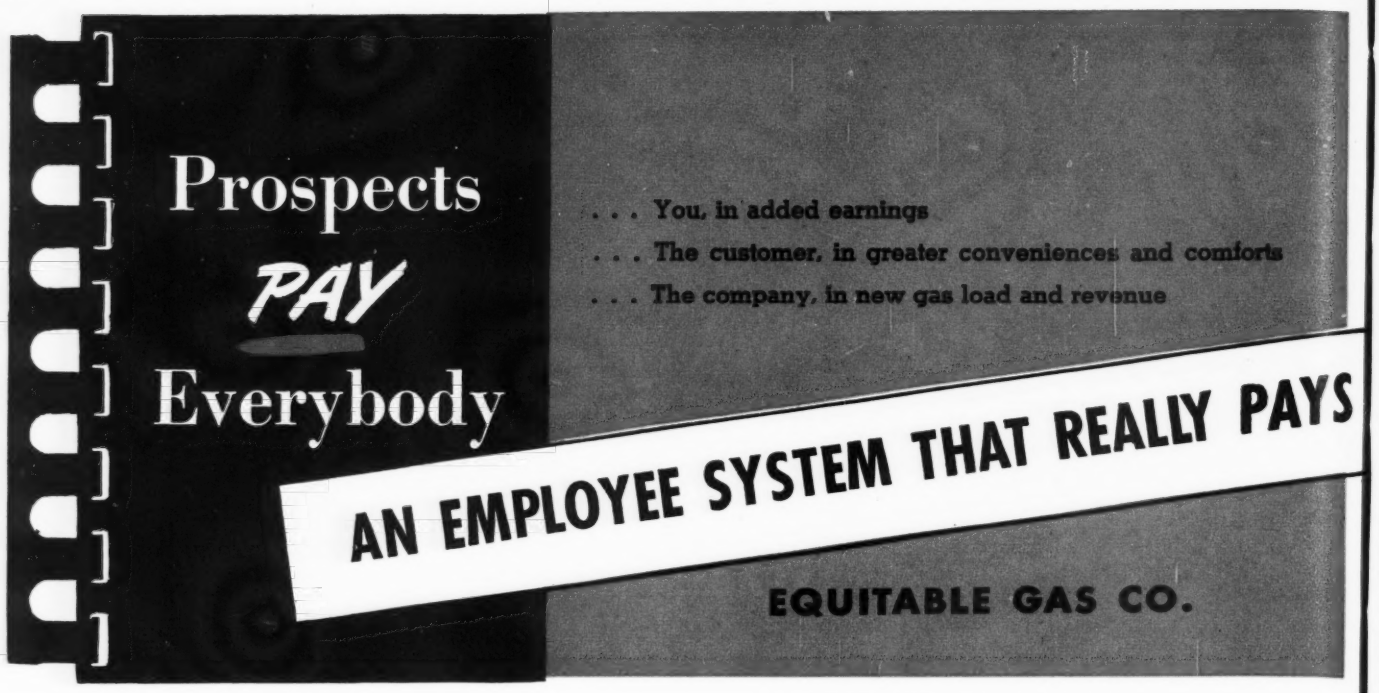
THREE proposed plants for the manufacture of motor fuels, synthetic diesel oil, and crude alcohols from natural gas are being planned.

Stanolind Oil and Gas Co., Tulsa, Okla., announces that it is considering the desirability of constructing a large commercial-scale synthol plant in the Mid-Continent area for such purposes, to be located in the Hugoton field.

The plant will process about 100 MMcf of gas per day, yielding approximately 6000 bbls. per day of high quality gasoline and 1000 bbls. per day of distillate fuels. The plant is now in the engineering stage.

The operation will be based on the Fisher-Tropsch process, which was originally developed in Germany to produce synthetic gasoline and oil from water gas. The Stanolind company expects to develop some refinements to this process and to produce in its plant a barrel of gasoline from each 10 to 15 Mcf of natural gas. Cost of the plant has not been announced but will be several million dollars.

The plant is being designed to process low-heating-value natural gas, currently unsuited for sale as fuel gas. The installation will include a natural gasoline plant, to provide the necessary volume of dry-feed gas, and an extensive pipe line gathering system.


Prospects
PAY
Everybody
. . . You, in added earnings
. . . The customer, in greater conveniences and comforts
. . . The company, in new gas load and revenue
AN EMPLOYEE SYSTEM THAT REALLY PAYS
EQUITABLE GAS CO.

Above is a reproduction of the 48-page Prospect Manuual, a guide to good selling for employees of the company.

A SERIOUS and large-scale campaign to obtain sales leads in these days of over-demand and underproduction might easily seem to be the height of ill-advised activity. When it is considered that this is the greatest seller's market in American history and that large order backlogs and priority lists create many problems and headaches, it would appear that the easy way out is just to sit back and sell what you can get with the customer taking the initiative.

For the gas industry, however, that course could create a fool's paradise. Faced by a well-organized and heavily-financed electrical competition for base load appliances as well as other consumer industry competition for the available purchasing power, the gas appliance merchandiser must conduct his business now with much consideration for the buyer's market which will soon confront him.

Gets Them on The List

The absence or restriction of sales contact with the buying public these days makes it easier for customers to become interested in electrical replacements for their gas appliances—and keeps them from thinking about purchasing new appliances. So, while any method of obtaining new sales leads—we call them prospects—may give the sales manager an acute case of the jitters by aggravating the overwhelming demand for scarce appliances, a prospect plan in operation now does serve to get potential buyers on a waiting list against the time when deliveries can be made within a reasonable time.

In addition to building up a backlog of orders, our prospect system accomplishes many positive jobs which must be handled by a sales department.

One of the most important of these is creating better customer relations. Whether it's logical or not, a customer who earnestly desires to purchase an appliance and finds none available doesn't like it. Every failure he encounters makes him increasingly irritated. Next to fulfilling his wants immediately, the best thing that can be done is to show a little interest in his problem. A prospect system makes this possible and saves many sales.

Incentive and Machinery

Enlisting the aid of the non-selling employee is definitely beneficial. These employees—meter readers, appliance service men, distribution and installation men, and personnel of other departments—are constantly meeting the public on a face-to-face basis. If they are seriously interested in selling they can do much. A prospect system provides the incentive for that interest and the machinery to make it effective.

By H. C. GIVAN, JR.
Sales Promotion Manager, Equitable Gas Co., Pittsburgh, Pa.

The relationship between employees and management is improved by a prospect system. Besides providing an opportunity for increased earnings, the system convinces the employee that his work on this project is needed and appreciated—knowledge which is definitely morale-boosting. In addition, by becoming acquainted with the work of another department, an employee gains increased understanding of the company's problems and plans, and tends to become less resistive to change or innovation.

Provides Direct Mail List

The compilation of address lists for direct mail advertising is a difficult task, with few effective means of measuring the quality of each name. A

Table 1. PROSPECT SYSTEM RULES

1. The prospect must be on the lines of the Equitable Gas Co.
2. The prospect information must be received and recorded before a sale is made.
3. The prospect will be honored even if the salesman has that prospect in his file, providing the customer has not been contacted during the preceding 60 days.
4. If another employee submits a prospect which has already been credited to an employee, the prospect slip will be returned, marked accordingly.
5. All prospects are stamped with the date and time as soon as they are received. The first prospect so stamped is the only valid one.
6. Since employees are allowed to buy appliances at a special discount, no bonus can be paid on a sale to an employee.

prospect system almost automatically gives a direct mail list of people who are interested in the products and who are seriously considering purchases. This won't be the last time they buy anything.

Another benefit of the prospect system is obvious: The salesman's time is saved for selling. He doesn't have to waste it in search for leads.

Finally, installing a prospect system now allows sufficient time to iron out the "bugs" so the system will be running smoothly in high gear when selling becomes work again.

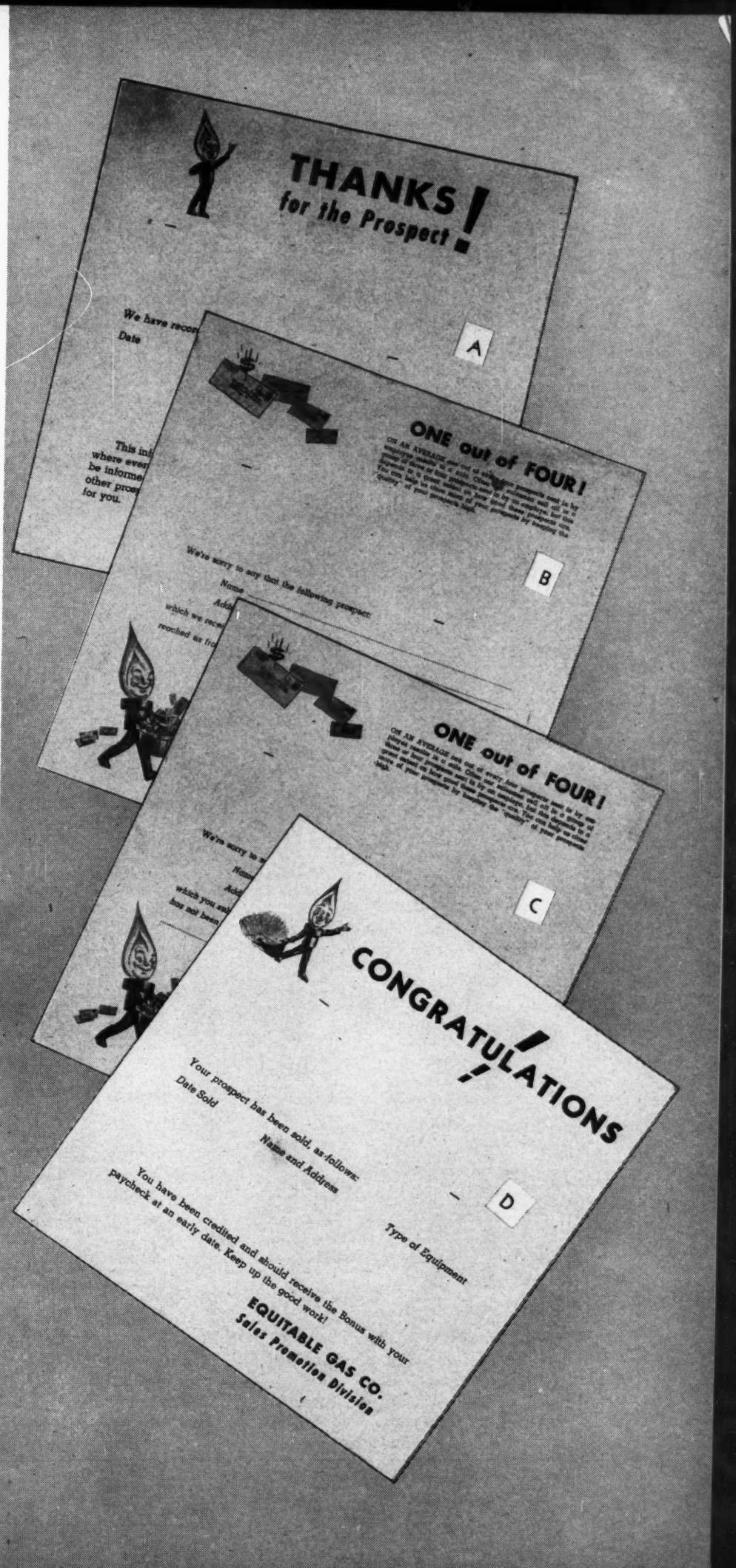
How It Works

The system itself is relatively simple. Each employee is sent a Prospect Manual, which lists the rules of the system, explains how it works, what is required of the employee, and how his prospect should be submitted. It also contains pictures and descriptions of the various appliances sold by the company and summarizes the main selling points of each. Included in the manual is a detachable pad of prospect forms, upon which the information is to be submitted. These forms contain a space for the employee to keep a record of each prospect he submits. The last form in each pad is printed on yellow paper. When the prospect clerk receives that yellow form he immediately sends the employee a new pad.

The rules of the Prospect System are shown in *Table 1.*

When a prospect is received by the prospect clerk it is immediately stamped. Then it is checked against existing files to determine its validity. If the prospect is good, the employee is notified, by mail, with a "Thanks for the Prospect" form. If the prospect has been previously received, the employee is notified on another form. The valid prospects are then entered under the employee's name, copied. filed and one copy is sent to the sales divisions. There they are filed in order of receipt and distributed to salesmen in that order.

The salesman then contacts the customer. If a sale is made the employee is notified; if the sale is not made, the employee is given the reasons. After a sale is made and the appliance has been installed, the proper bonus is



Essence of the system is prompt notification of progress made with prospects. Shown at right are the four forms mailed to the employee: Form A, acknowledgement of receipt of the prospect; Form B, notification that prospect had already been received from another source; Form C, notice of failure of salesman to make the sale; Form D, notification that prospect has been sold and bonus will soon be paid.

Table 2. BONUS PAYMENTS

Price of Appliance	Bonus
Up to $150	$ 5
$151-200	7
201-250	8
251-300	9
301-400	10
401-600	12
601-1000	15
1001-2000	20
2001 up	25

credited to the employee, who receives it with an early paycheck. The amount of the bonus is determined by the selling price of the appliance, as shown in *Table 2*.

Both the effectiveness and efficiency of the prospect system depend upon employee interest and cooperation, and those can be obtained only by making bonus payments large enough to warrant them. Before the war the Equitable Gas Co. utilized the prospect system with a schedule of payments approximately half of that listed in *Table 2*. The receipt of prospects was sporadic, and extra bonuses or contest prizes were necessary to make a reasonably good showing in a special sales campaign.

Two Sales Out of Five

Under the pre-war system only one of every four prospects received resulted in a sale, partially because the bonus offered was insufficient to cause the employee to take his prospect activities seriously. At the present time the ratio is approximately two out of five, and would be considerably higher if merchandise, particularly heating equipment, were more readily available.

Just and prompt administration of the system is necessary if employee participation and cooperation is to be retained. It should be made clear that the prospect bonuses are not gifts, but are payment for service performed for the company over and above regular duties. No possible tinge of favoritism to an individual or a group can be allowed to exist.

Salesman Can't Lose

One factor which caused a substantial amount of resentment and criticism during the operation of the pre-war system was the deduction of the employee bonus from the salesman's commission. The salesmen, naturally, found it to their interest to concentrate on leads other than those received from the system. The employees who submitted prospects often felt that their information was not being taken advantage of completely. Under the present system the salesman gets his full commission, and the company pays the bonus.

Another item which is of deep concern to the participating employees is the length of time a prospect is valid. Under the old system, if no sale was made within 60 days after receipt of the prospect, that customer could be reprospected by any employee if the original prospector did not renew immediately. Now, partially because of employee criticism of the rule and because of the equipment situation, a prospect is good for one year and can be renewed once.

Liaison

In addition, the employee must feel that there is someone who is interested in his getting bonuses, and who will take up any question or problem which bothers him. To accomplish this the company's employee contact man was made liaison man. He is always available to check the status of an individual prospect or to see that a prompt interpretation of rules is made in borderline cases.

Obviously, it was impossible to set up a rule for every possible case which might arise. Accordingly, the rules must sometimes be changed or modified, for both the employees' and the company's benefit. These changes and modifications are always based on the principle that bonus payments are for services rendered beyond usual duties.

One Appliance Per Form

One of the most important of these changes was caused by the habit of a few employees of checking each item of equipment on the prospect form, then insisting upon payment if any one of the items was sold. This practice resulted in the rule that only one appliance could be listed on one form. An exception to this, however, is in the heating field, where a heating engineer is sometimes required to determine which type of equipment is needed. A prospect for gas heating equipment is honored no matter what type is sold.

As was originally expected, the prospect system has resulted in a huge backlog of sales leads, with some discouragement on the part of employees and some customer impatience. This situation is natural, however, and would exist with or without the system. The Equitable Gas Co. firmly believes that its prospect system is a valuable sales aid and that it will pay off increasingly in the future.

"NEXT TO fulfilling (the customer's) wants immediately, the best thing that can be done is to show a little interest in his problem. A prospect system makes and saves many sales."

H. C. Givan

So declares the author in this exposition of the employee prospect system in use by his company, which he feels contributes heavily toward creating better customer relations. And which, at the same time, brings in new prospects who might well be sold on the advantages of waiting for that new gas appliance—and, of course, pays the employee a bonus of sufficient size to provide a real incentive.

Mr. Givan has had many years service with the company. Graduated from Cornell University in 1926 with a degree in chemical engineering, he immediately entered the public utility field, joining the Philadelphia Co. of Pittsburgh, May 1, 1926. He has served successively as engineer of tests, heating sales engineer, supervisor of heating sales, refrigerator and radio sales, supervisor of trade development, and finally—upon his release from active duty with the Army Air Forces during the war—sales promotion manager, to which position he was named Dec. 1, 1945.

EQUITABLE GAS COMPANY — PROSPECT SLIP

Equitable Gas Company
Sales Promotion Department

Date_____ 19____

Please have salesman contact:

Customer_____ Phone No._____

Street_____ Location_____

I have talked personally with this customer about:

☐ CP Gas Range	☐ Gas Radiant Heater	☐ Gravity Warm Air Gas Heat
☐ Gas Refrigerator	☐ New Freedom Gas Kitchen	☐ Hot Water or Steam Gas Heat
☐ Gas Water Heater	☐ Cooking Vapor Removal	☐ Year 'Round Gas Air Conditioning
☐ Gas Laundry Dryer	☐ Gas Conversion Burner	☐ Gas Unit Heater
☐ Gas Circulating Heater	☐ Forced Warm Air Gas Heat	☐ Commercial Process Heat

Other Equipment _____

Remarks _____

Employe_____ Department_____

Company _____ Location _____

If Urgent—Call GRant 7600, Extension 750 . . . Confirm Call with Prospect Slip

Date_____ Sold_____
Customer_____ Expires_____
Address_____ Earnings_____
Prospect for_____

The Prospect Slip, which is submitted by the employee, is shown above.

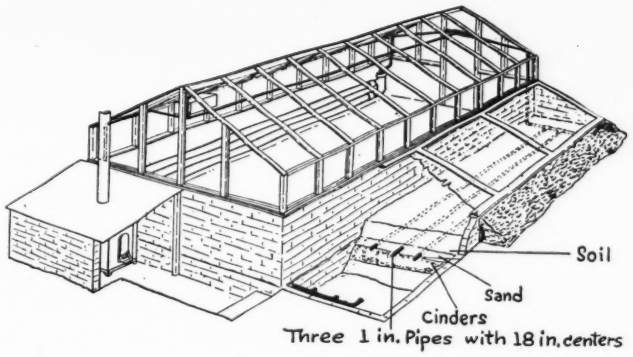


Fig. 1. Circuit arrangement for soil warming.

USE OF GAS FOR Greenhouses and Soil Warming

THE greenhouse owner, whether commercial or amateur, should have a form of heating which will guarantee him a suitable minimum temperature. If the fuel used be not automatic and reliable, night stoking and waste of fuel is inevitable. The lower temperatures occur between 4 a.m. and 7 a.m., so that a banked boiler will be at its lowest output when the need for heat is greatest. Small boilers commonly used for small greenhouses are very difficult to keep alight at night, not necessarily through any fault in boiler design, but because the brick flue is too short, or a cast iron flue pipe is used.

Many growers are also of the opinion that a controlled drop in temperature overnight is beneficial to some plants, but this can only be done with an automatic fuel. There would be considerable risk if an attempt were made to control, say at 40°F overnight with hand-fired equipment.

Varying Temperatures

Heat loss figures for greenhouses are fairly well established, and with the aid of degree days very close approximations to running cost can be made for the maintenance of constant predetermined temperatures; but greenhouse owners do not want constant temperatures day after day. It may be desirable to alter temperatures weekly, and perhaps to reduce them every night if they could be controlled.

To engender confidence in the control and reliability of gas, it is the practice of one gas undertaking to run a thermograph inside and outside a greenhouse for a week or so when the installation is first used. Even an expert gardener does not always realize that the quantities of heat required are *not* proportional to temperatures, but to temperature differences. The fact needs to be strongly emphasized. For a brick and glass greenhouse of 1000 cu. ft. and over, the heat requirements are 0.5 Btu per hr. per cu. ft. per °F difference and under. Taking the higher figure, this is equivalent to 12,000 Btu per degree day for a 1000 cu. ft. house. The total heat required to maintain 60°F for a normal year will be of the order of—

$$\frac{12{,}000 \times 3{,}857}{100{,}000} = 463 \text{ therms.}$$

If 55°F had been sufficient, the consumption, using a similar calculation, would have been about 348 therms.

Soil Warming

Much has already been done to test the effect on plants of warming the soil in which they grow. Waste heat from local engineering works and power stations has been used in Scandinavia, and in other parts of the Continent, to warm water in pipes passing below ground. Experiments over long periods have been made on soil warming in greenhouses, Dutch lights, and in open beds at the experimental and research station at Cheshunt, and at the Hertfordshire Institute of Agriculture, England.

There are indications that with coke it will be economically sound for early intensive salad production, but more research is still needed to determine among other factors, the best soil temperature; 60° to 65°F at a depth of 6 in. appears to be needed for general purposes under Dutch lights, but higher tempratures may be required in greenhouses. With too high a soil temperature there is difficulty in maintaining moisture in the soil.

Figures taken from private experiments show that the loading required is of the low order of between 10 and 40 Btu per hr. per sq. ft. For instance, lettuces in a soil-warmed frame during March and April have done well with 10 Btu per hr. per sq. ft., but for earlier operations 30 to 35 Btu per hr. per sq. ft. appears to be necessary.

Much interest as well as the prospect of earlier and better crops would accrue to the private greenhouse owner if his frames were soil warmed. Manure for hotbeds is increasingly difficult to obtain. Private gardeners might welcome an opportunity to try soil warming technique in its place. If a greenhouse be already heated, the installation cost, say, for a four-light bank of frames would not be great. Continuous warming appears to be beneficial, so that separate control is advisable if the greenhouse is to be left under its own thermostat. A suitable experimental installation is suggested in *Fig. 1.*

Controlling Heat Output

Heat output to soil could be controlled by varying the water temperature on the boiler thermostat and throttling a valve manually, or by the use of separate diaphragm type control valves on the returns from the greenhouse circuit and from the soil warming grid as shown in *Fig. 2.*

The largest prospective greenhouse load in the author's area of supply is that from private owners. Even this is not very great, but the author believes it to be useful in one very important respect. Personal contact with a consumer over something which is of more than ordinary interest to him has its own value, in that it provides opportunity to demonstrate the value of gas.

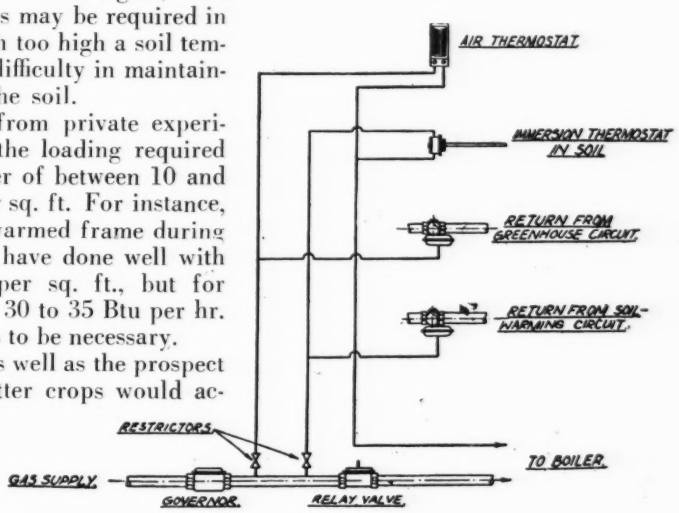
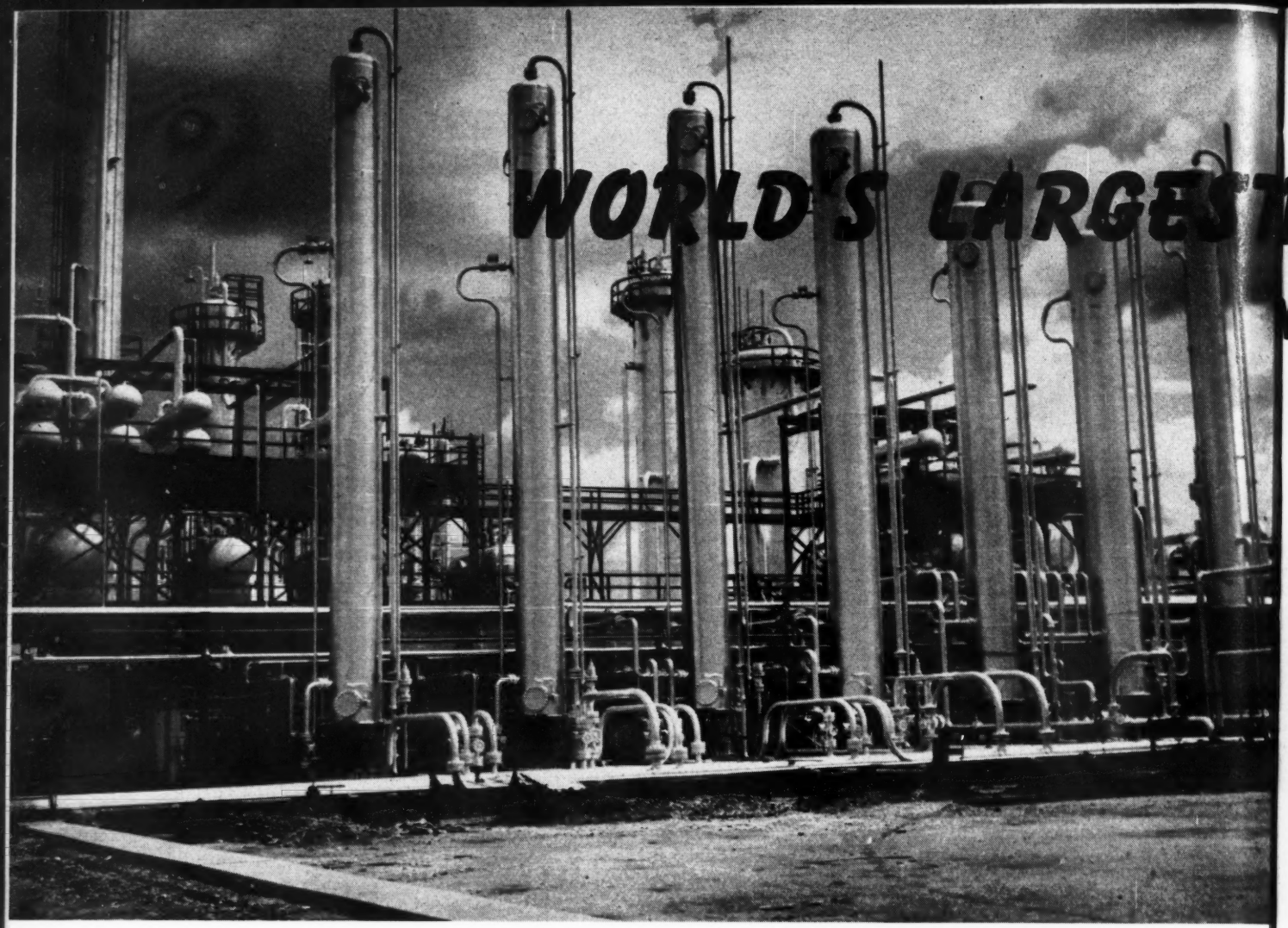


Fig. 2. Soil warming gas controls.

Courtesy "Industrial Gas Times."



General view of absorbers and stills at Abercrombie-Magnolia High Pressure Recovery Plant, Old Ocean, Texas.

GAS conservation measures, together with the desire on the part of oil field operators to recover a maximum amount of light oil from the so-called high pressure distillate fields, has brought about during the recent years the development of high pressure hydrocarbon recovery systems operating at pressures up to 1800 psi.

By far the greatest part of this type of development and plant construction has been in the Texas-Louisiana Gulf Coast Area. There are, however, a few high pressure recovery plants on the West Coast.

Increasing Demand for Recovery

Originally, when a high pressure distillate field was discovered, the wells were flowed into high pressure separators wherein the light oil or distillate was separated from the gas and the gas either burned in the air or compressed back into the formation. The separators were operated in most cases, where the gas was returned to the structure, at maximum pressure in order that the gas could be delivered to the compressor suction at a high pressure, thus reducing the number of compressors necessary. Since most of these separators operated in the retrograde condensation range, above 1100 psi, considerable amounts of pentane and heavier material remained in the gas and were either burned or returned to the formation. Because of this, and also because in recent years there has been an increasing demand for isopentane and iso and normal butane, recovery plants operating at high pressures have been built to handle the gas leaving the separators. At first these plants were designed to recover substantially all of the hexane and

Table 1. Typical Analysis of Wet and Dry Gas Streams
(Mol Percent)

	1800-lb. Absorber		1250-lb.. Absorber		500-lb. Absorber		150-lb. Absorber		50-lb. Absorber	
Component	*Wet Gas*	*Dry Gas*	*Wet Gas*	*Dry Gas*	*Wet Gas*	*Dry Gas*	*Wet Gas*	*Dry Gas*	*Wet Gas*	*Dry Gas*
Carbon Dioxide	0.50	0.30	0.50	0.40	0.50	0.50	0.50	0.50	0.50	0.50
Methane	93.13	95.69	92.15	94.80	91.63	96.56	90.75	89.16	32.68	65.60
Ethane	3.05	2.93	4.24	3.76	4.36	2.02	4.95	7.97	18.33	20.37
Propane	1.67	0.92	1.58	0.89	1.96	0.87	2.03	1.82	23.91	11.73
Isobutane ..	0.40	0.11	0.44	0.10	0.52	0.01	0.52	0.30	8.33	1.13
Normal Butane	0.54	0.03	0.42	0.03	0.49	0.01	0.58	0.20	8.88	0.60
Isopentane	0.20	0.01	0.18	0.01	0.20	0.01	0.17	0.01	3.36	0.04
Normal Pentane	0.13	Trace	0.12	Trace	0.13	Trace	0.15	Trace	1.07	0.02
Hexane Plus	0.38	.....	0.37	.....	0.21	.....	0.35	.....	2.44	Trace
Total 100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

NOTE—1250-, 500-, 150-, and 50-lbs. absorber dry gases contain flash gas from rich oil from previous absorber.

RESSURE MAINTENANCE

ND HIGH PRESSURE RECOVERY PLANT

By H. M. NELLY, JR., RALPH CANFIELD, and THOMAS E. SULLIVAN*

heavier material, about 90% of the pentanes, and only 40 to 50% of the butanes. Today, however, there are a few plants which are recovering as high as 90% of the normal butane in the incoming gas at pressure as high as 1800 psig.

Within the last year J. F. Pritchard & Co. has designed, constructed, and put into operation for J. S. Abercrombie Co. and the Magnolia Petroleum Co. the largest single high pressure absorption plant ever built. This plant was designed to handle 350 MMcf per day of wet gas from the Old Ocean oil field, near Sweeny, Texas.

High Recovery Rates

The gas is gathered at various points throughout the field and delivered to the plant at 1800, 1250, 500, 150 and 50 psi. The plant recovers approximately 90% of the normal butane and substantially 100% of the isopentane and heavy material, producing liquid propane, isobutane, normal butane, isopentane and deisopentanized gasoline. When the light oil from the Old Ocean field is charged to the plant, along with the various gases, the plant will produce besides the above products, a specification kerosene and light gas oil.

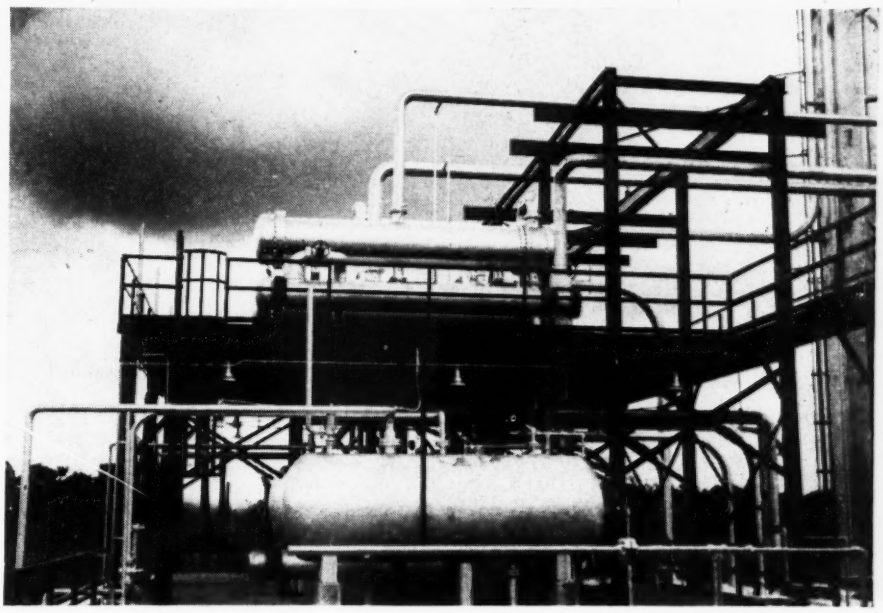
Typical analyses of the wet and dry gas streams to and from the several absorbers indicate the high efficiency of extraction realized on the light hydrocarbon components. These analyses are shown in *Table 1.*

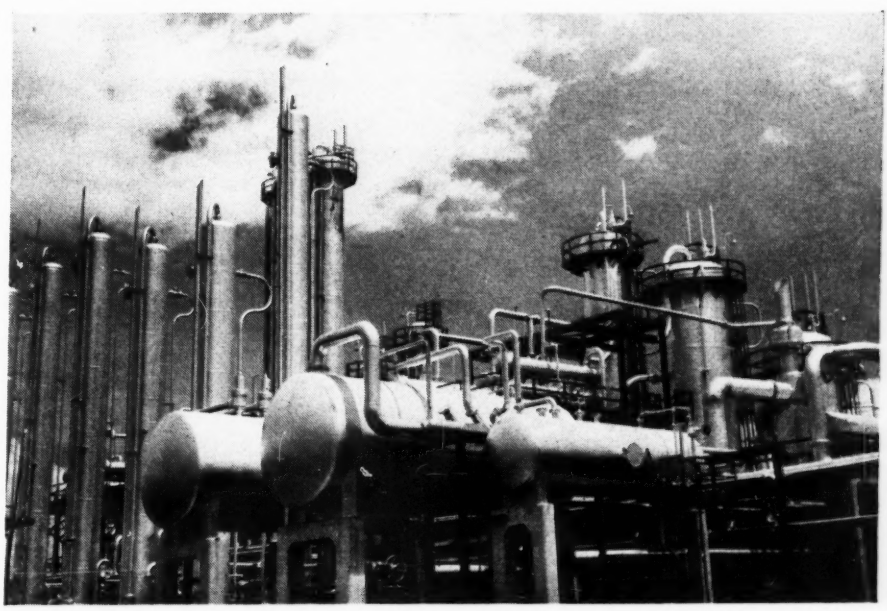
The various dry gases from the absorption plant are either sold or compressed and reinjected into the producing formation at 3700 psi.

80,000 Bbls. Per Day

Some idea of the size of the plant may be had from the lean oil circulated, which is 80,000 bbls. per day, and the cooling water requirement of 17,000 gals. per minute.

A schematic flow diagram for the plant is given. Reference to this flow diagram will show that the absorption side of the plant differs from the conventional absorption systems in two instances. First, the high pressure absorbers utilize a double lean oil system.





From the Old Ocean oil field, 350 MMcf per day of wet gas is handled.

*Respectively manager, Petroleum Division, J. F. Pritchard & Co.; superintendent of gasoline plants, J. S. Abercrombie Co.; and assistant manager, Pritchard Petroleum Division.

PRESSURE MAINTENANCE PLANT

Heaters at the plant capable of distilling 80,000 bbls. of rich oil daily.

The advantages of this type of operation are discussed later. Second, the rich oil from the bottom of each absorber flows directly into the bottom of the next lower pressure absorber without intermediate flashing or separation.

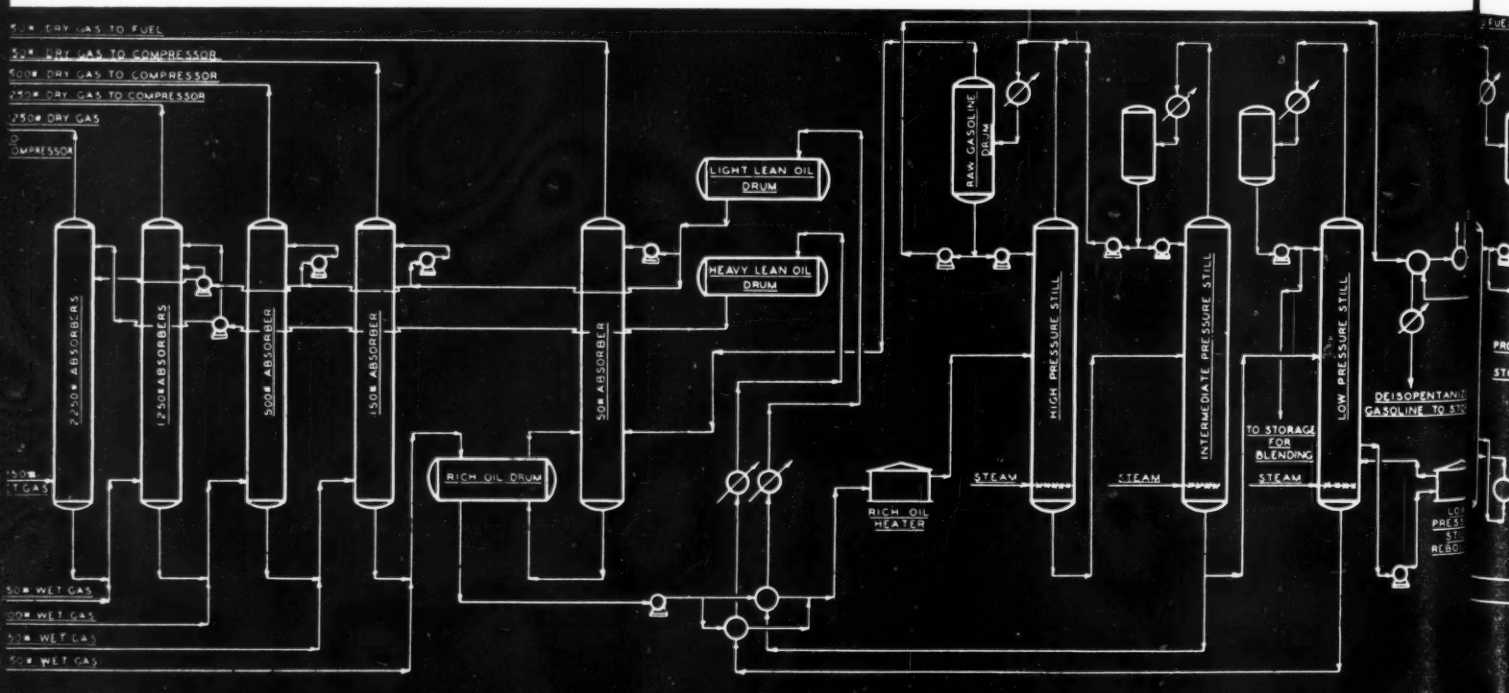
The lean oil stripping system consists of three stills: a high pressure still operating at substantially 200 psi, wherein the preheated rich oil from the absorption side of the plant is flashed and partially stripped of the lighter hydrocarbon; an intermediate pressure still operating at 50 psi, wherein the partially stripped rich oil is further stripped to produce a light, low-molecular-weight lean oil as a bottoms product, together with a raw gasoline overhead product (this raw gasoline is pumped as a liquid into the overhead from the high pressure still to help condensation at this point); finally, a low pressure still operating at substantially atmospheric pressure for processing a small amount, about 15% of bottoms from the intermediate pressure still to further strip and produce a heavy, high-molecular-weight lean oil.

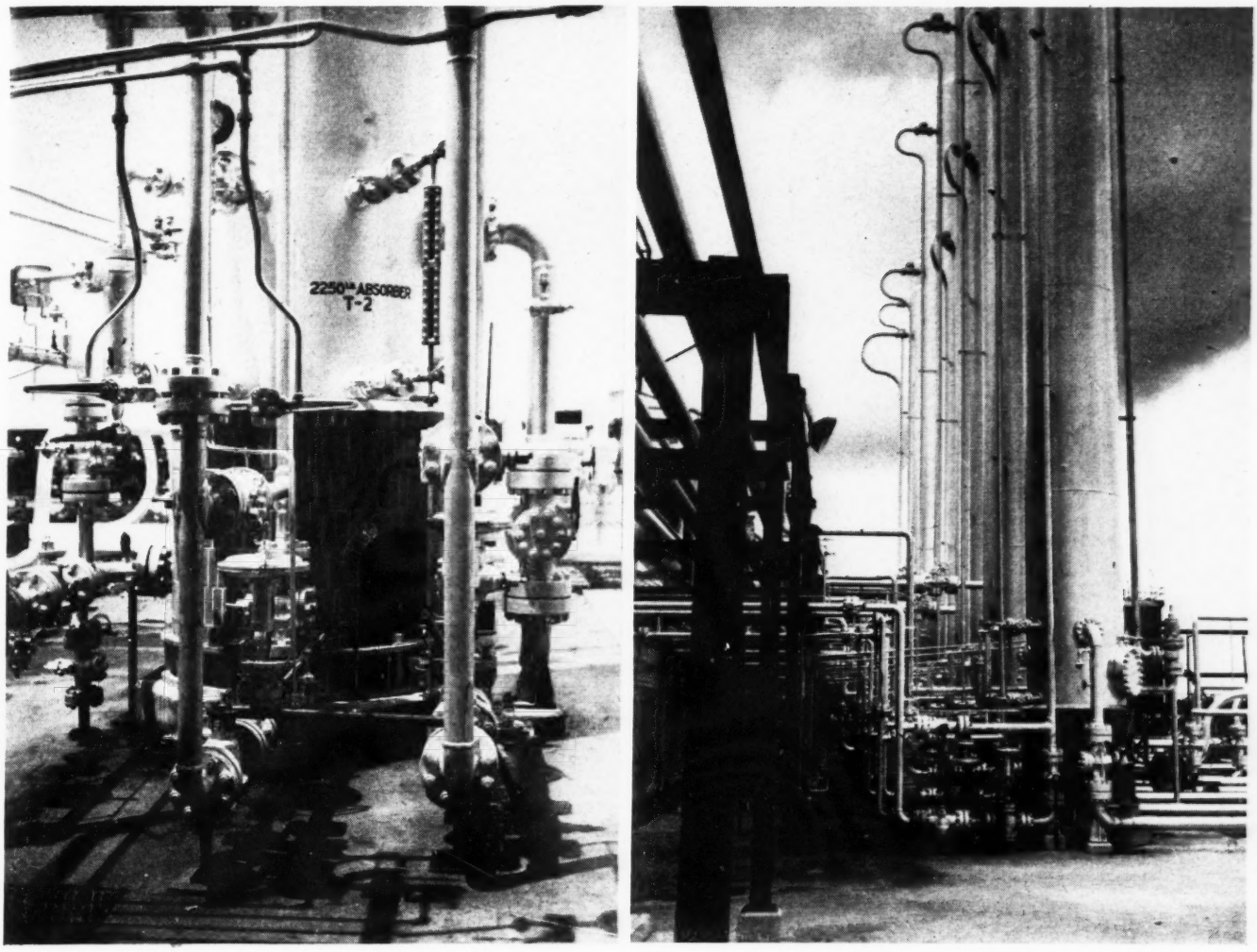
The use of a high pressure still in conjunction with the intermediate pressure still has the advantage over the conventional method of stripping, which is to flash the preheated rich oil directly into a still operating at intermediate pressure of between 50 and 80 psi, in that the combination of the two stills produce considerably less overhead gas which must be recycled and reprocessed in the absorption system to maintain an over-all high butane recovery. In a plant as large as this one, and where the butane recovery is as high as here, this recycle gas is of sufficient magnitude so that if the process design is not such as to keep it at a minimum, considerable additional plant investment will be required.

Raw Gasoline Processing

The raw gasoline from the lean oil stripping system is processed in a conventional manner. First, it goes through a depropanizer, and then a debutanizer. The butane overhead from the debutanizer goes to the isobutane fractionator. The debutanized gasoline from the bottom of the debutanizer flows to the isopentane fractionator. The design pressure on the depropanizer has been set at approximately 300 psi in order that a liquid propane can be withdrawn from the top of the tower.

Reference has been made to the





The multiplicity of valves and fittings required by the extensive piping around the absorbers is illustrated in the photos above.

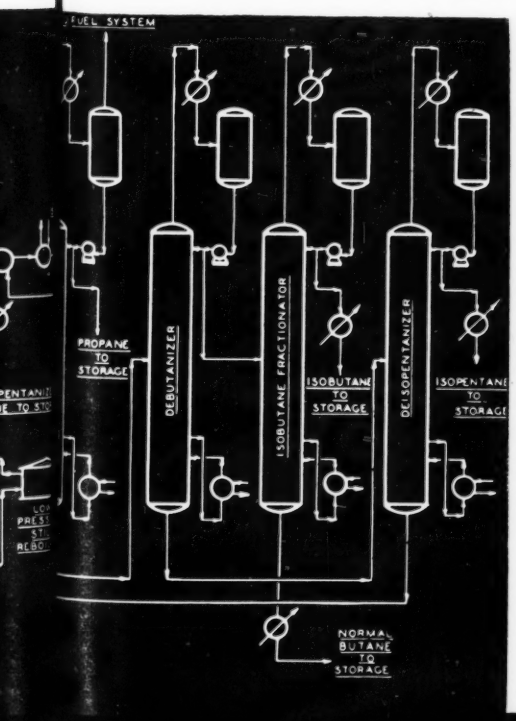
double lean oil system used on the high pressure absorbers. The advantage in using this flow instead of the conventional single lean oil flow is that for a specified recovery an appreciable smaller amount of lean oil is circulated in the double oil system, and the lean oil that is circulated is considerably easier to prepare.

It is essential when absorbing in the retrograde condensation range to use a heavy, high-molecular-weight lean oil having a high initial boiling point, in the neighborhood of 450° to 500°; otherwise there will be a considerable lean oil loss in the dry gas. The higher the absorption pressure, the more pronounced this loss becomes.

This heavy oil is, however, not as efficient an absorbing medium as a lighter oil because more pounds of the heavy oil have to be processed per mol used, and the same number of mols of either the light or heavy oil would have to be circulated for a specified recovery.

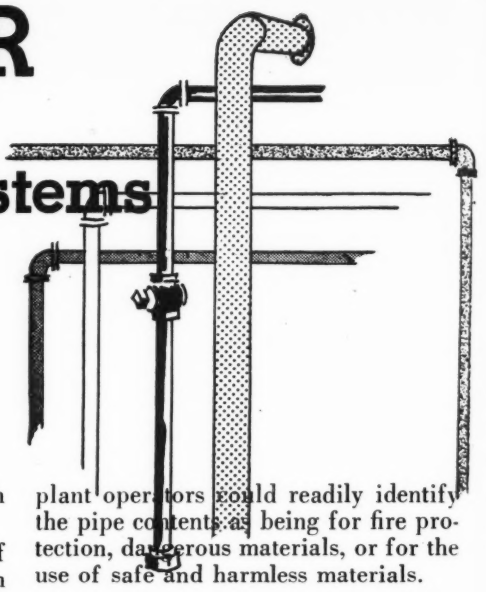
In the double lean oil system practically all of the absorption is carried out with light lean oil which is introduced into the absorbers two-thirds of the way up the absorbers. Heavy lean oil is introduced at the top of the absorbers and its function is to absorb the light lean oil in the dry gas coming from the lower section of the absorber. Adjacent to the new recovery plant at Sweeny is an old high pressure recovery plant which utilizes the conventional single lean oil flow. It is interesting to note that the 1800 psi absorbers in the new plant require approximately 8½ total gals. of lean oil for an 85% normal butane recovery; whereas 10.7 gals. of lean oil are required for the same normal butane recovery in the old plant. The number of trays in the high pressure absorbers in the old and new plant are the same.

The disadvantage of the double oil system is that it complicates to some extent the plant, from both an equipment standpoint and an operating standpoint. Check estimates have shown that on a plant the size of the one described here, there is no question but that this complication can be justified in a very material reduction in the plant costs. There is considerable question whether or not enough savings can be effected in a plant processing 75 MMcf per day or less, unless the absorption was carried out at very excessive pressures where it might be necessary to prepare a special lean oil for use in the high pressure absorbers.



The Use of COLOR

To Identify Piping Systems



By M. J. MONAHAN

Technical Director, American-Marietta Co.,

Kankakee, Ill.

COLOR plays such a vital part in our every day life that without it our existence would be drab and monotonous. Most of us are not really conscious of the importance of color, but take color out of our lives and immediately we would notice its absence. Color has always been with us, and consequently we have become accustomed to associating color with certain objects, ideas, and moods.

Red we associate with heat and fire; green with spring and summer, grass and trees with full foliage, and serenity; blue with the color of lakes and ocean, a sense of calmness and thoughtfulness; brown and tans with autumn when trees and fields take on their subdued dress before the advent of winter; yellow and orange with sunset, stimulation.

There was no real standardization of colors for industry until the American Society of Mechanical Engineers and the National Safety Council, with the approval of the American Standards Association, published in November of 1928 their pamphlet entitled, "Recommended American Practice Scheme for the Identification of Piping Systems (A Systematic Plan Employing Color and Other Kinds of Marking Based on Fundamental Principles)." This scheme extended previous use of color in industry to identification of various piping systems throughout a plant.

Since red has been recognized as synonymous with fire, the use of this color was broadened to include identification of sprinkler piping as part of the fire protection system. Before 1928, it was common practice to paint fire extinguishers and fire buckets with a bright red paint. In this way the color red became standard for the whole fire protection system.

ASA Recommendations

The recommendations of the American Standards Association called for the use of colors from yellow to orange for dangerous materials such as acids, alkalis, high pressure steam, petroleum solvents, alcohols, inflammable gases, high pressure inert gases, many chemical solutions, etc.

The color green was recommended for safe materials such as low pressure air, drinking water, glycerine, sugar juices and syrups, alum solution, etc.

Blue was recommended for protective material other than fire protection, and deep purple was suggested for valuable materials.

Recognizing the dangers to pipe fitters and steam fitters doing work on a series of parallel pipes, the American Standards Association encouraged the use of a color code for piping systems so that maintenance men and plant operators could readily identify the pipe contents as being for fire protection, dangerous materials, or for the use of safe and harmless materials.

While the recommendations of the American Standards Association contributed immensely to correct use of a color code, particularly in reference to piping systems, there was no overall national color code to take care of all industrial hazards. This was particularly true during World War II when vast numbers of men were being trained for industrial occupations. Consequently, the War Department requested that a nationally acceptable standard be developed. This work was carried out by the American Standards Association. Their "Safety Color Code for the Marking of Physical Hazards and the Identification of Certain Equipment" was approved and published July 16, 1945.

ASA Color Code for Piping

As pointed out in the introduction of the American Standards Association's "Scheme for the Identification of Piping Systems," the principal requirements for a standard scheme for the identification of piping systems are (a) distinguishability, (b) flexibility, (c) inclusiveness, (d) simplicity, (e) practicality, and (f) rationality. Under this scheme, the first and principal requirement is that pipes in each system shall be so colored as to designate exactly which of the five major classes of fluids are being conveyed.

Quoting further from the "scheme," we find that the color may be applied over the entire length of the piping system or in bands 8 to 10 in. wide near valves and at other important places. The use of bands permits identification by color, even though all the pipes of a given layout are given uniform treatment for purpose of illumination or decorative appearance.

Where it is desired to identify more exactly the nature of the fluids in a

WAR DEPARTMENT recognition of the need for a national color code during World War II, when the influx of untrained men into industrial occupations served to underscore the hazards of unmarked piping systems, led to the adoption of "The Safety Color Code for the Marking of Physical Hazards," authored by the American Standards Association, and published in July, 1945. This booklet marked another milestone along the path toward inter-industry, nation-wide standardization, which had been started with the publishing of an earlier ASA booklet in 1928.

M. J. Monahan

Almost every class of industrial pipe-carried material is provided a color marking under the new standardization scheme, as tabulated herein. Directions are also provided for setting up a plant-wide system.

The author is well known in the field of chemical engineering. Graduated from Newark College of Engineering in 1926, he was later associated with Congoleum-Nairn Co., Kearny, N. J., and joined American-Marietta Co. at the Lincoln, N. J., plant in July, 1929. The following year he was transferred to Kankakee where he was chief chemist until early last year, when he was promoted to the position of technical director.

Table 1. CLASSIFICATION OF MATERIALS CARRIED IN PIPES

American Standards Association

Material Piped	Physical State Gas, Liquid or Semi-Solid	Temperature of Material in Deg. Fahr. (Max.)	Pressure in Lb. per Sq. In. (Min.)	or	Vacuum in Inches of Mercury or Water	Classification
Acetic acid	Liquid	Normal	30 lb.		28 in. Hg.	D
Alcohol	Liquid	Cool				D
Amyl acetate	Liquid	Cool				D
Alum solution	Liquid					S
Acetylene gas	Gas	0 to 200	½ in. to 250 lb.			D
Benzol	Liquid	Cold	Up to 80 lb.			D
Brine	Liquid	Cold	About 60 lb.			S
Butyl alcohol	Liquid	Cool				D
Bleach liquor	Solution					D
Bisulphite liquors	Liquid					D
Blau gas	Gas	00 to 200	½ in. to 250 lb.			D
Compressed air	Gas	80	300 (in special cases 3000 lb.)			S
CO_2	Gas and Liquid	—30 to —100	0 to 250 lb. per sq. in. gage			D
Caustic soda solution	Solution					D
Chlorine	Gas, Liquids, and Solutions					D
Carbon bisulphide	Gas and Liquid					D
Chloroform	Gas and Liquid					D
Carbon tetrachloride	Liquid					S
Coal gas	Gas	0 to 200	½ in. to 250 lb.			D
Dyes	Solution	Usually cool				D
Flue gas or waste heat	Gas	0 to 200	½ in. to 250 lb.			D
Foamite	Liquid	Cold	Up to 100 lb.			F
Glycerine	Liquid	Hot and cold	Up to 60 lb.			S
HCl	Liquid	Up to 80	2 to 10 lb.			D
Hydrogen	Gas					D
H_2S Gas	Gas	0 to 150	½ in. to 100 lb.			D
Intermediates	Solution	Usually cool				D
Lactic acid	Liquid	Normal	60 lb.		20 to 22 in.	V
Mixed acid	Liquid	Normal	30 to 80 lb.			D
Miscellaneous solvent	Liquid	Cool				D
Mercury	Gas and Liquid		29 in. to 100 lb.			D
Muriatic acid	Liquid					D
Natural gas	Gas	0 to 200	½ in. to 250 lb.			D
Nitric acid	Liquid	Normal	10 lb.			D
Nitro bodies	Liquid	Cool	Up to 40 lb.			D
NH_4NO_3 (molten)	Liquid		None			D
NH_3	Liquid and Gas	—30 to 100	0 to 250 lb. per sq. in. gage			D
N_2O and N_2O_3 vapor	Vapor	0 to 150	½ in. to 100 lb.			D
Oils (Petroleum)	Liquid	Below 580	Below 1200 lb.			D
Paper sizing solution	Liquid					S
Pinch gas	Gas	0 to 200	½ in. to 250 lb.			D
Producer gas	Gas	0 to 200	½ in. to 250 lb.			D
Pyrox compounds	Liquid	Up to 80				D
Paint	Liquid	Cold	30 lb.			D
H_2SO_4	Liquid	Up to 180	30 to 80 lb.			D
Soda ash solution	Liquid	Cold	60 lb.			S
Sugar juices and syrups	Liquid	195 to 200	0 to 50 lb.			S
Steam	Vapor	Below 212	Below atmos.			S
Steam	Vapor	212 to 800	Above atmos.			D
SO_2	Gas and Liquid	—30 to 100	0 to 250 per sq. in. gage			D
Sulphur chloride	Gas and Liquid					D
Turpentine	Liquid	Cold	Up to 80 lb.			D
Toluene	Liquid	Cool	Up to 40 lb.			D
Tar	Liquid					D
Varnish		Cold and hot	30 lb.			D
Vapors of valuable materials not otherwise specified	Vapor	0 to 180	½ in. to 100 lb.			D
Water	Liquid	Cold	Any pressure			S
		Hot	Any pressure			D
Water gas	Gas	0 to 200	½ in. to 250 lb.			D

KEY TO CLASSIFICATION

F—Fire Protection—Red
S—Safe—Green
D—Dangerous—Yellow
P—Protective—Blue
V—Extra Valuable—Purple

given piping system, this may be accomplished by (a) the addition of one or more stripes of color at the edges of the band, or by (b) stenciled letters, words, or figures on the band. For example: in a plant having several safe materials, there would be several pipes having the dominant color or color band of green, and superimposed on these green bands on one piping system might be a stripe of red, on another a stripe of yellow, another a stripe of blue, etc., the color of the secondary stripe having lost its main classification significance under this scheme. If the selected system had included legends instead of stripes, then, in the example given above, there would be, superimposed upon each green band, the stenciled name of the material conveyed by that particular pipe, or an identification mark of some kind.

On page 41 is a copy of the "Scheme for the Identification of Piping Systems" as it appears on pages 7 and 8 of the pamphlet of the American Standards Association.

Object and Scope

1. The scheme is intended to harmonize all specifications for the identification of materials conveyed in piping systems and is intended to form an acceptable basis for a universal scheme.

2. This scheme has been limited to the identification of piping systems in industrial plants and power plants, not including pipes buried in the ground and electric conduits.

Definitions

3. Piping Systems. For the purpose of this scheme, piping systems shall include, in addition to pipes of any kind: fittings, valves, and pipe coverings. Supports, brackets, or other accessories are specifically excluded from applications of this standard. Pipes are defined as conduits for the transport of gases, liquids, semi-liquids, or plastics, but not solids carried in air or gas.

4. Fire-Protection, Materials, and Equipment. This classification includes sprinkler systems and other fire-fighting equipment.

5. Dangerous Materials. These materials are those which are in themselves hazardous to life or property by virtue of being easily ignited or productive of poisonous gases or are in themselves poisonous. They include materials that are known ordinarily as fire producers and explosives.

6. Safe Materials. These products are those involving no hazard in their handling and no extraordinarily high value. A workman in approaching a piping system to make repairs will accordingly run no undue risks in breaking into a pipe bearing a safe material, even though that material had not been emptied by previous arrangement.

7. Protective Materials. Under this class fall materials which are piped through plants for the express purpose of being available to prevent or minimize the hazard of the dangerous materials above mentioned. Thus, a plant may have certain special gases which are antidotes to poison fumes piped through its shops for the express purpose of release in case of danger.

8. Extra Valuable Materials. These might be classified with the group of the safe materials above mentioned, but where these products have a very high value, it is preferable to give them a separate major classification.

Method of Identification

9. At conspicuous places throughout a piping system, color bands shall be painted on the pipes to designate to which one of the five main classes its contents belongs. If desired, the entire length of the piping system may be painted the main classification color. (See Par. 13.)

10. Further, the actual contents of a piping system may be indicated by, preferably, a stenciled legend giving the name of the contents in full or abbreviated form. These legends shall be placed on the colored bands. The identification scheme may be extended by the use of colored strips placed at the edges of the colored bands.

11. The bands, legends, and stripes shall be placed at intervals throughout the piping system, preferably adjacent to valves and fittings to ensure ready recognition during operation, repairs and at times of emergency.

Main Classification by Color

12. This part of the scheme is intended to identify the main classes into which the materials in the piping systems belong. It establishes a basic fundamental principle applicable to all schemes for identifying piping systems and is intended to designate the pipe contents as belonging to a specific class of materials that are safe, dangerous, or otherwise, depending on local conditions. The inclusion of all existing systems at present in use is made readily possible with minimum change by the adoption of the following color classification.

13. All piping systems are classified according to character of material carried. Especially in an emergency the quick recognition of the contents of a piping system is of paramount importance. For this purpose, each piping system is classified, by the nature of its contents, into the classifications listed below:

Class	*Color*
F—Fire-protection equipment	Red
D—Dangerous materials	Yellow (or orange)
S—Safe Materials	Green (or the achromatic colors, white, black, gray or aluminum)
and, when required	
P—Protective materials	Bright blue
V—Extra valuable materials	Deep purple

14. The above colors have been chosen to identify the main classification because they are readily distinguishable one from another.

15. Red has been assigned to fire-protection equipment because of long established custom. Yellow and orange have been assigned to dangerous materials because, of all the saturated chromatic colors, these have the highest coefficient of reflection under white light and can therefore be more readily recognized under the poorest conditions of illumination. Further, yellow is the traditional color of the quarantine flag and has been adopted as the caution signal for railroads and road traffic. The assignment of the other three follows in order.

16. List all materials carried in the pipes of the system or systems.

17. Assign each of these materials to one of the five main classes: Safe products (S), Dangerous materials (D), Protective materials (P), Extra valuable materials (V), and Fire-protection equipment (F).

18. Group the materials assigned to each class for the purpose of facilitating choice of sub-class markings.

19. Choose between the alternative methods of (a) color bands or (b) complete color painting.

20. Assign a legend or color stripe to each material listed under each main classification.

21. Select the five colored paints* which will identify the main classes and the paints to be used for the stripes

*Red, yellow, green, bright blue, deep purple.

if the use of stripes has been decided upon in the place of legends.

22. No type of paint or other suitably colored coating is excluded. The selection of coatings comes under the jurisdiction of the supervising engineer or person in authority and may be made to meet the diverse requirements of each case. All that the scheme requires is that the dominant hue of the band shall fall unmistakably within one or the other of the five spectral regions.

23. Colors which have a total reflective value too low to permit ready differentiation at minimum illumination are excluded. Median gray, which from the physiological or visual standpoint is situated about halfway between white and black, reflects approximately 25% of the incident standard white light and is near the permissible limit of reflective value for poor illuminuation. The permissible limit of reflective value is provisionally established at 19%.

24. An ordinary hand flash lamp when held by an operator at the reading distance may be used as the arbitrary measure of minimum light.

Identification Markings

Originally the American Standards Association considered the use of symbols to indicate the exact contents of the pipe. This method was found to be much too involved and finally it was decided that the identification marking should consist principally of a lettered legend, abbreviated or otherwise, naming the material carried in the pipe line. Where a knowledge of the direction of flow may be of service it is suggested that arrows be painted on the pipe.

In order to assure maximum visibility, the lettering should be placed below the horizontal center line of the pipe. It is desirable, where the view is unobstructed, that the lettering employed be stenciled on the two lower quarters of the pipe covering rather than on one side. In this way there will be less likelihood of the lettering becoming obscured.

With regard to visibility, the eye, as a matter of habit, is most accustomed to the reading of black letters on lighter backgrounds. It is therefore suggested that the black letters be either stenciled or painted on the band of main classification color, when light, and on a rectangular background when dark. The American Standards Association goes on to say that the color of the background and the nature of the material used may be that deemed suitable for the purpose.

From an article appearing in Crane "Valve World."

Charleston Celebrates A Century of Gas; Booklet Documents History

A CENTURY of continuous operation, which saw its system grow from a $100,000 plant to a facility capable of supplying up to 4 MMcf per day, was celebrated by the South Carolina Power Co., Charleston, Dec. 18. High point of the fete was a banquet at the Francis Marion Hotel, where 350 gas company guests gathered to hear H. Carl Wolf, managing director of the American Gas Association, as featured speaker, and to honor six descendants of the organizers of the Charleston Gas Light Co., predecessor of South Carolina Power.

The "Century of Public Service" was recorded in a booklet which was distributed to the assemblage, and whose cover is reproduced in part above. Therein are documented the highlights of the hundred years from the date the original company's stock charter was approved by the city council, Dec. 18, 1846, to the present.

The record of rate fluctuations tells a story in itself, reflecting economic progress, war and postwar upheaval, competition, and technical advancements. It reveals that, in 1848, the first year the system was in operation, a price of $5 per Mcf was charged, a rate which was not permanently lowered until the late '70s. Three years later it was reduced to $4 per Mcf, but the Civil War interrupted the company's plans for effecting further reductions. The North's blockade halted coal imports, so pine wood was used in retorts, and the rate rose to $8 in Confederate money. In 1865, residential users were assessed a top of $10 for the service, a price which finally, in 1876, dropped to $3.25 after a series of fluctuations, and which went still lower in the face of electrical competition.

The story of the growth of South Carolina Power's facilities is also set down. The original plant, set up in 1847, consisted of a brick retort house, with a 52-ft. chimney "of ornamental appearance" rising from its center; a small purifying house, containing four boxes and a station meter; a 100,000 Mcf holder, 80 ft. in diameter and 20 ft. deep, and an office, tool house, and workshop.

A "valuable improvement" over older systems is noted in its inception: the method of purging gas of its "offensive" odor.

In 1910 a major improvement was made, when water gas generated with coke replaced coal gas. A new plant was erected in place of the old one.

The booklet is liberally illustrated. Pages from old newspapers, photographs and engravings depicting early days in the city's life are reproduced. Copies of pages from early receipt books used by the company note such items of interest as the following:

"Rec'd Charleston May 5th 1852 of the Charleston Gas Lt. Company Six Hundred Twenty five dollars for 3 months salary to date." This was signed "Joshua Lazurus," first president, and co-founder with M. C. Mordecai.

Below this receipt is pictured another receipt, signed by W. J. Heriot, secretary and treasurer, acknowledging one month's salary. The amount—$41.66.

FABRICATING WORLD'S LARGEST HIGH TEST LINE

NOW famed as the "Biggest Inch," the California portion of the Texas-California pipe line is rolling out of the Maywood, Calif., plant of Consolidated Steel Corp. in 30-ft. sections at the rate of one every 4¼ minutes, or approximately nine miles every week.

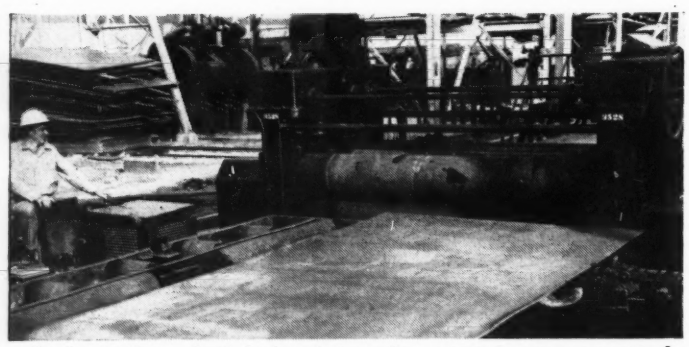
With the line scheduled for completion by the end of November, 1947, Consolidated engineers are confident that they can have the job of fabrication finished by next June.

Methods new to the west coast are being utilized—continuous welding of the longitudinal seams and hydraulic expansion of the welded pipe sections. (See "Building the Texas-To-California Line," by A. F. Bridge, GAS, Oct., 1946, Page 62.)

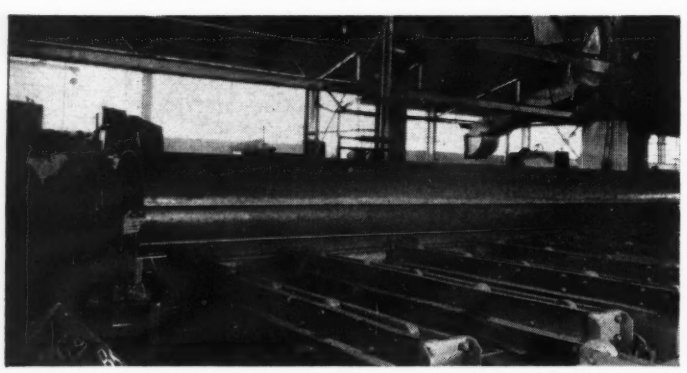
Stringing of the 60,000 tons of pipe has been under way for several weeks, and installation by the H. C. Price Co. is scheduled to begin Feb. 3. Two new departures are being employed in this part of the work. One is the X-raying of every tenth weld, or one weld per welder per day. Although successfully used in ship construction during the war, X-ray has never been used in connection with laying gas transmission line. The other innovation is the use of weld ells for making angles in the field, rather than employing the wrinkle process.

The continuous line, photos of which are shown on this page, was especially tooled for this particular job. Its installation required six months and cost Consolidated $1 million.

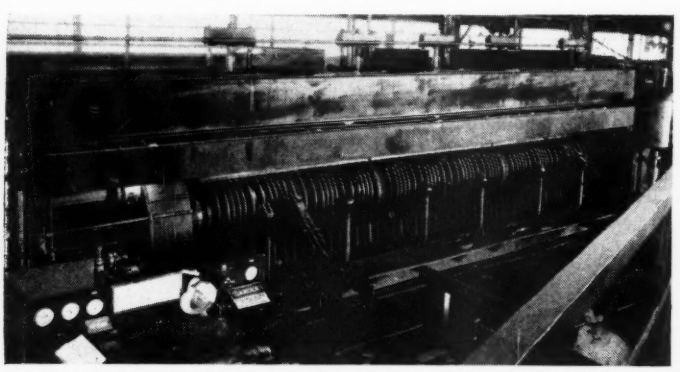
The Biggest Inch is, as its nickname implies, the largest high-pressure transmission line ever built.



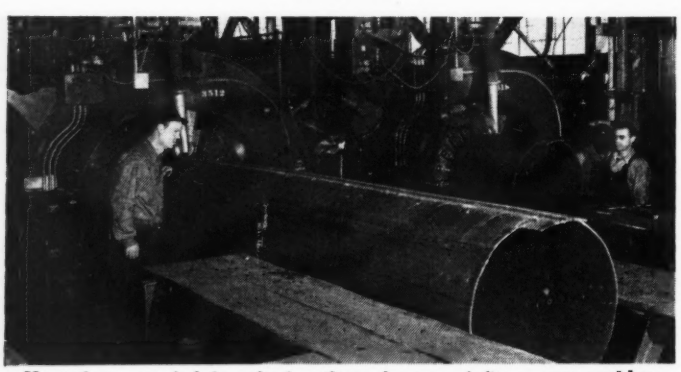
At the intake end of the continuous line, special manganese steel plates 92 in. wide and 30 ft. long move through leveling rolls, which remove buckles, and a shear, which trims ends; thence past grit blasters, which remove mill scale from edges.



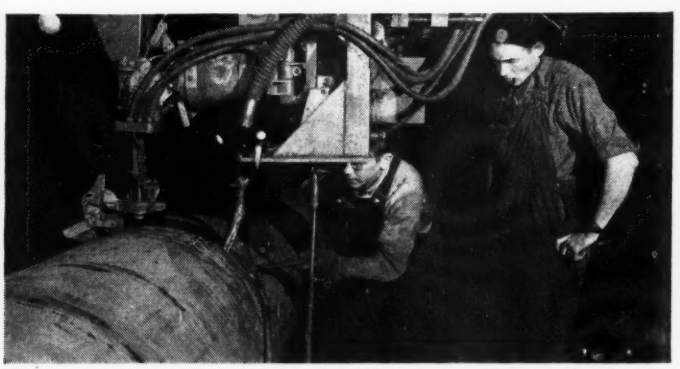
From planers, which reduce them to proper width and squareness and prepare them for welding, and through edge roll, which curls the edges, the plates pass to pyramid rolls, where they are shaped into cylinders.



In the hydraulic expanders, water pressure stretches the pipe about ½ in. to full 30-in. diameter. Stretching gives greater strength, permitting use of 25% lighter plate; true cylindrical die assures roundness, straightness.



Next they are fed lengthwise through one of five seam welders, where they are welded by submerged arc process. Here edges are progressively fused by means of heat generated by passage of current between electrode and plate.



From expanders, where it lost about 3 in. in longitudinal shrinkage, through hammer test and leak inspection, pipe moves to end facer for conditioning, and to a circumferential welder, where two sections are joined into 60-ft. shipping length.

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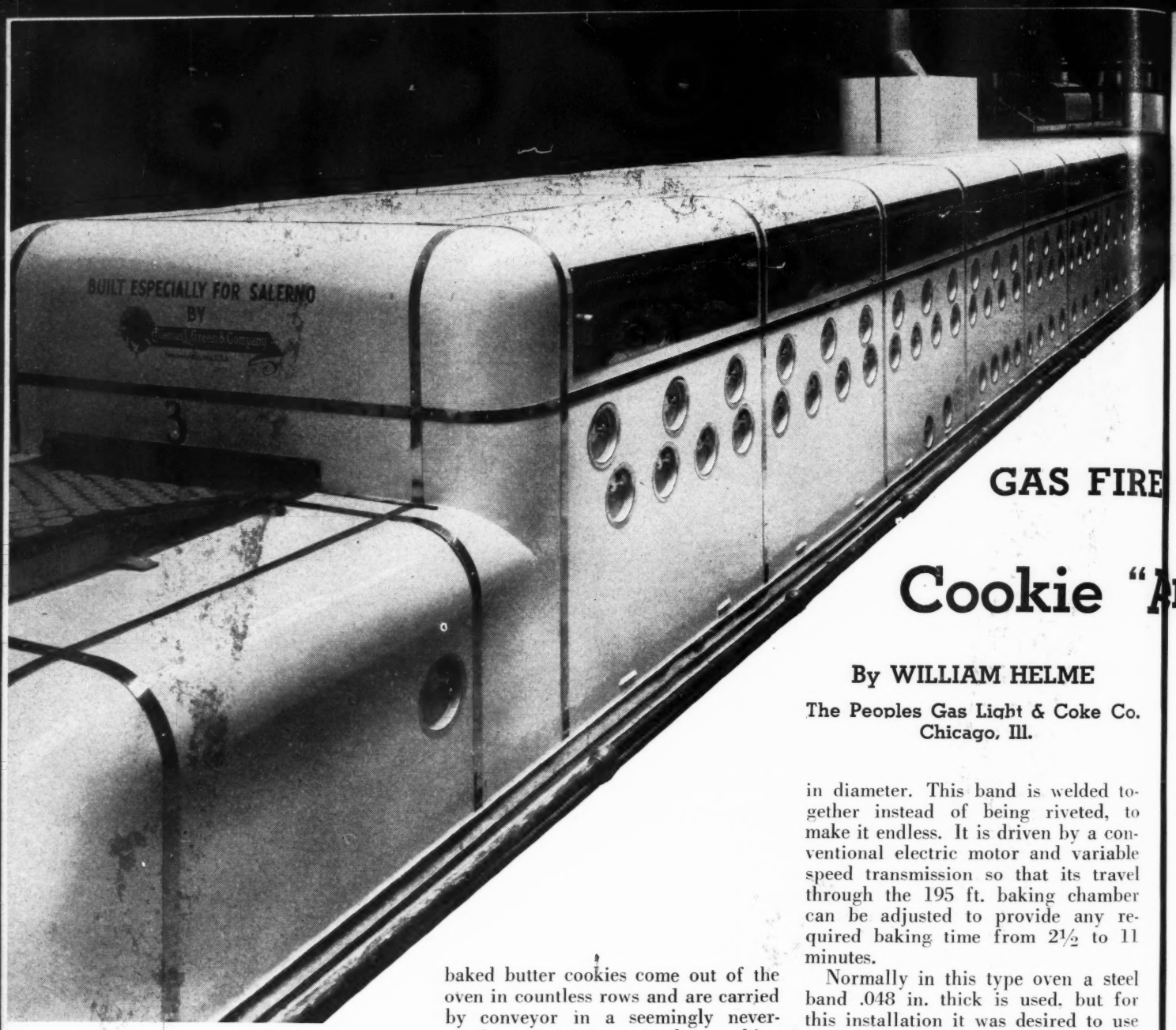


View of oven showing most of the 156 burner observation ports. Automatic control equipment, gas piping is housed in panels.

GAS FIRE

Cookie "A

By WILLIAM HELME

The Peoples Gas Light & Coke Co.
Chicago, Ill.

SLEEK and trim as a streamlined train—and nearly a block long—is a good description of a gas-fired continuous bake oven now in operation at the plant of the Salerno-Megowan Biscuit Co. in Chicago. Housed in immaculate white enamel and trimmed with well-polished chromium, this equipment represents the world's most up-to-the-minute baking line.

It is completely automatic from the time the dough is fed in at the loading end until it emerges far down the line in the form of delectably baked crackers or butter cookies. This operation takes less than four minutes, and 156 gas burners spaced at just the right places insure a uniformly controlled heat throughout the complete length of the oven.

Like soldiers on parade, the freshly baked butter cookies come out of the oven in countless rows and are carried by conveyor in a seemingly never-ceasing procession to the packing table where a crew of nimble-fingered girls quickly pack them into attractive packages wrapped in cellophane. The individual packages are then put into heavy cardboard cartons and sent to the shipping department. A fleet of fast trucks is on hand to carry them away at frequent intervals, and in a very short time they are on the grocers' shelves.

Designed and built especially for the Salerno plant by Thomas L. Green & Co., Indianapolis, this oven was an important factor during the war in supplying the armed forces with a huge volume of army K-Rations. It is now back on peacetime production in a plant where over 25 million crackers and butter cookies are baked daily.

This particular oven has many distinctive features which are not usually found in other ovens of the same type. The hearth, for instance, is a solid steel band or belt 38 in. wide by .096 in. thick, running around pulleys 8 ft. in diameter. This band is welded together instead of being riveted, to make it endless. It is driven by a conventional electric motor and variable speed transmission so that its travel through the 195 ft. baking chamber can be adjusted to provide any required baking time from 2½ to 11 minutes.

Normally in this type oven a steel band .048 in. thick is used. but for this installation it was desired to use a band with sufficient heat storage capacity, at a comparatively low temperature, to cause biscuits made from sponge dough to spring or expand just as rapidly as soda crackers baked on the steel plate of a reel oven. Therefore, the oven was equipped with a special band made of finest steel .096 in. thick, which is about 75% of the thickness of a reel oven shelf.

Special Maxon Premix line burner has 35-in. flame length; 156 are used.

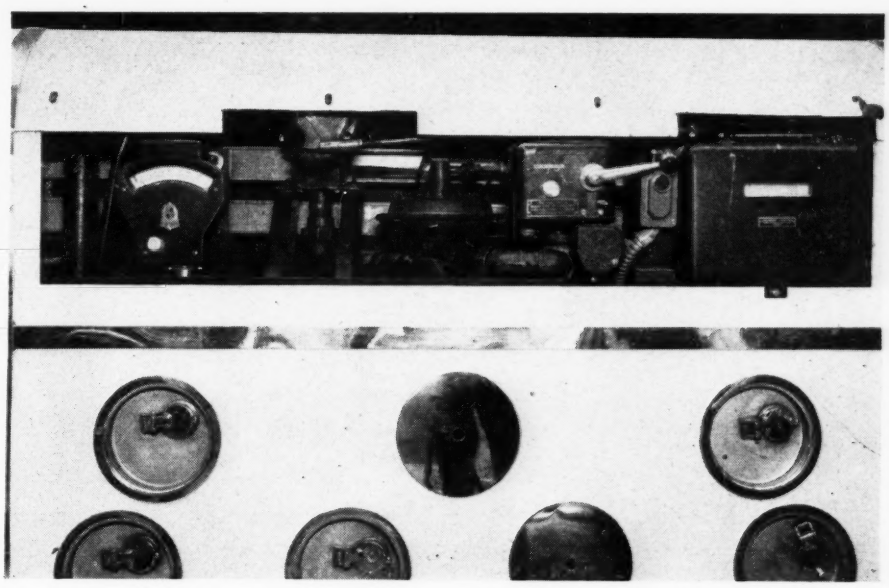
In its travel through the baking chamber, the band passes between a total of 156 upper and lower gas burners. These are special Maxon Premix line burners, having a 35 in. flame length. The lower ones heat the band itself, which transmits the heat to the biscuit or cookie by conduction. The burners above the band and in close

proximity thereto heat the biscuit from the top.

The oven is divided into four zones, with a bank of top and bottom burners in each zone. Each bank of burners is provided with its own gas-air mixing device, throttling type temperature controller, and automatic safety shut-off valve. Every burner is equipped with a spark plug energized by a mechanical electrical distributor.

Operation of the Oven

To start the oven, the steel band is first put in motion by turning on the band driving motor. Next, the exhaust fans are run for five minutes to purge the oven of any possible gases. This period is controlled by a timing clock.



Close-up of one oven section removed shows Partlow indicating thermometers, Maxon Premix ratio valve, gas pressure regulator, safety shut-off valve, Lindberg temperature control.

"Assembly Line"

In sequence, the air blowers for the gas mixing valves are started, followed by ignition. After these operations have been performed the automatic gas valve for each bank of burners can be manually opened, but if any one of the prerequisite functions stops, the automatic safety gas valve closes, and it cannot be opened until the sequence of starting is repeated.

Since each bank of burners has its own temperature indicating and controlling thermometer, the operator can set the instrument for any temperature desired in any particular zone. Once this temperature is set, the control equipment takes over and regulates the heat input to maintain this temperature. The result is that an even temperature can be maintained within very close limits in each zone regardless of the requirements for heat created by the different classes of goods being baked. It is far more accurate than human control.

Should there be a period of time when no product is being baked, the throttling control automatically reduces the Btu output of the burner so that an excessive heat does not build up in the oven during that interval.

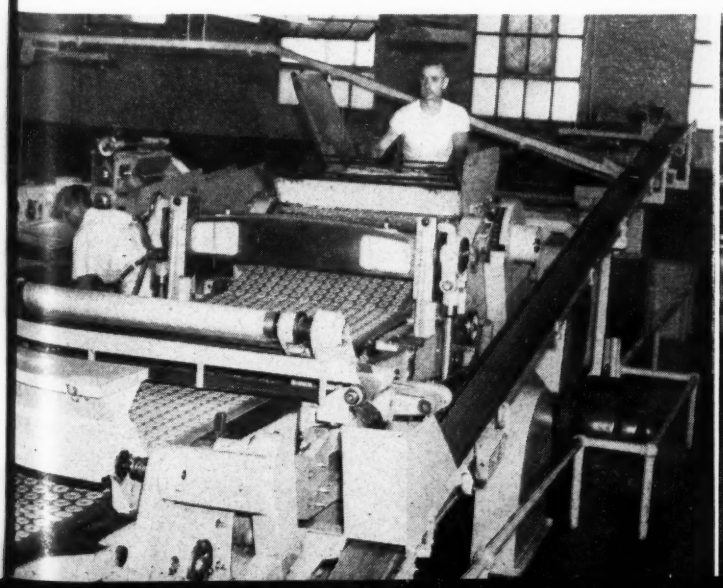
The return chamber of the oven through which the steel band passes is separate and distinct in every particular. It is provided with preheat burners so that the temperature of the band can be increased to the desired temperature at the point where the fresh dough is received. Likewise, it is provided with air blowers and exhaust ducts controlled by dampers so that its temperature can be lowered during the return travel if desired.

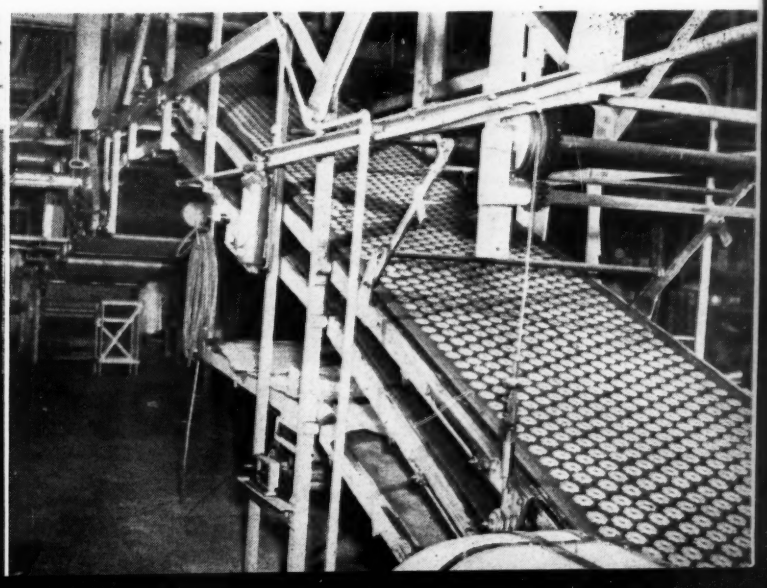
Because of the manner in which the heat is controlled in the band as well as in the baking chamber, together with the extreme care used in insulation, any type of biscuit that is made in a modern bakery can be baked in this oven. Soda crackers are baked equally as well as in a reel oven. Sweet goods are baked more efficiently because of the high heat storage capacity of the band.

Gas Consumption

In addition to the innovations mentioned, the oven is very conservative in the use of gas fuel. A comparison of the production records at the plant with the monthly gas bills taken over a six-month period, indicates that 95 cu. ft. of 800-Btu gas are required for each 100 lbs. of goods baked, or less than 1 cu. ft. of gas per lb. At the prevailing gas rates in Chicago, this costs the customer about 5 cents per 100 lbs. of goods baked.

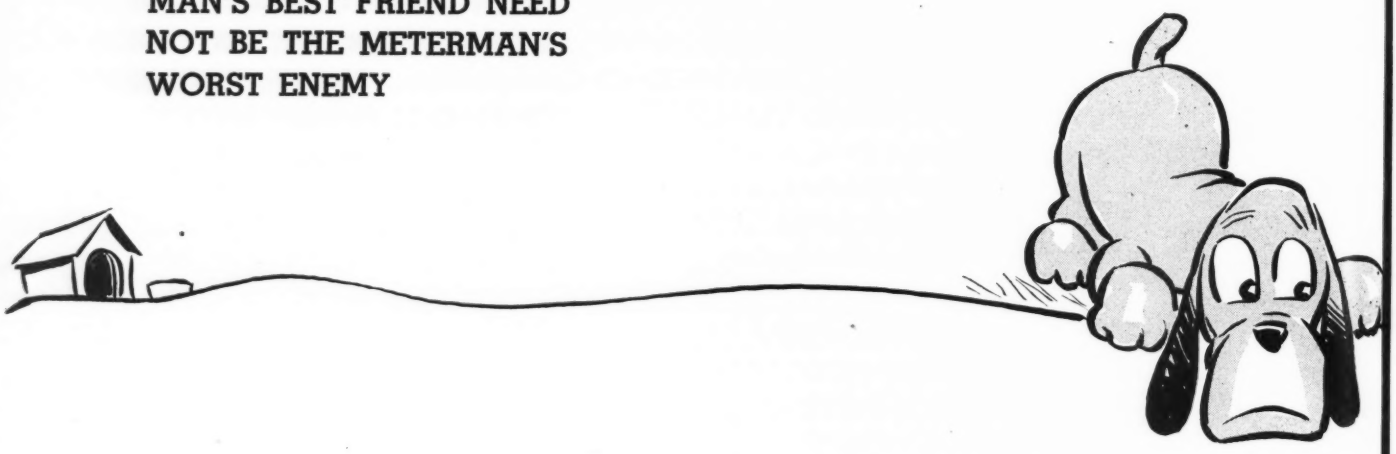
Operator feeds dough into loading end (at left), and four minutes later the butter cookies emerge from the ovens (right). From the conveyor belt they are carried to the packaging table.





Controlling Customers' Canines

MAN'S BEST FRIEND NEED NOT BE THE METERMAN'S WORST ENEMY



Man's best friend is a serious occupational hazard to meter readers and servicemen. An unpredictable animal, his temperament may range from sweetness to raging bestiality. Facts for neophytes and some tips for the wary, compiled by the Southern California Gas Co. and other authorities, are contained herein.

SOME of the meanest-tempered dogs in the world are natives of Los Angeles. Others reside in Dallas, Miami, and Aurora, Ill.

A poll among hungry man-eaters in those cities would probably indicate that gas metermen and servicemen are best by taste-test.

Putting these facts together, plus a few statistics (e.g., that 88 employees of the company suffered indignities at the paws of Los Angeles dogs in one year, and that there are probably more dogs in the area than in any corresponding area in the world), the Southern California Gas Co. some time ago decided that a study of dogs and methods of achieving better relations with them was in order. In the course of their studies, company officials discovered some interesting facts about canine mores, and arrived at some interesting conclusions, which might serve as a basis for an intelligent plan of defense for meter readers and servicemen in other dog-occupied territories.

In the city of Los Angeles, there are 115,000 males, 98,000 females and 38,000 spayed females on which the city collects dog license fees. This is a total of 251,000 licensed dogs. For each licensed dog, it is estimated that there are between two and three that are not licensed.

Aids to Desirability

Most dog bites occur on the hands and wrists, and heels and lower leg. Tradesmen such as postmen, meter readers, newspaper boys, etc., are the favorite victims; ladies carrying purses or hand bags are next in line in frequency of dog bites. This fact would indicate that by carrying visible objects a victim increases his desirability in the eyes of the dog, and should therefore be even more careful than he normally would.

The mail carriers call at the same houses daily and still they, as a group, suffer on an average of 1½ dog bites per day. As an example of the difficulties encountered by mail carriers, there is a story about one who worked a route regularly. At one particular stop when there was a letter, he gave it to a large German shepherd dog to take to his mistress; if there was no letter, he always carried a piece of newspaper rolled up to give to the dog. The dog came to regard it his privilege to carry a paper of some sort to his mistress each time the postman passed his house. One day, a relief carrier was on the route and, not knowing of the working arrangement of the regular carrier, started to pass by, ignoring the dog. Thereupon, the dog grabbed the mail bag off the carrier's shoulder and started up the front steps, the mail man in pursuit. When the carrier attempted to rescue his mail bag, the dog turned on him and gave him a real working over. This story demonstrates how a dog will attempt to carry out the duties he feels are rightfully his.

Many Breeds, Many Temperaments

Dogs have at least as many varieties of character, disposition, and temperament as the human race. There are actually many more breeds of dogs than there are races of men. Large dogs are less inclined to be excitable or snappish than the smaller dogs. However, this is no safe rule. A dog's training and environment have more to do with his behavior than his ancestry. A large amount of mean disposition and nastiness among house dogs actually is due to boredom. The average dog likes to work, help his master and feel useful. When his only duty is that of volunteer watchman, he is likely to be overenthusiastic when a stranger appears.

Records of the Southern California Gas Co. reveal that dogs of all shapes and sizes are encountered, no particular breed being predominant, and that owners never believe their dogs will bite anyone. In the company, 48% of

all dog bites were inflicted upon customer service department people, mostly servicemen.

Meter Readers Vary

This seems high when one considers that meter readers are confronted by many more dogs than servicemen. A meter reader will read around 300 to 400 meters per day as compared with the 15 to 25 stops per day per serviceman. However, every meter reader soon develops a healthy respect for all dogs. With him the problem is a major one because of his constant exposure, and he soon figures all dogs as potential biters. He is expecting a dog at every house and is constantly on guard. He also has a notation in his book which lists supposedly bad dogs; seeing these notations daily helps to impress upon him that he must be observing and careful. In other words, dog bites are of major importance and, once the meter reader recognizes this, he makes special efforts to protect himself against the known hazard.

Customer servicemen encounter fewer dogs than meter readers, but under circumstances that are very different. The meter readers go from house to house and are not required to enter the premises as often as the servicemen. The dogs meter readers encounter are usually allowed to roam the streets, which in itself indicates they are not known to be bad. Servicemen are required to enter the premises and dogs encountered there have a somewhat different duty to perform; they feel that safeguarding the property and their master is their prime duty, and rightfully so. Bites inflicted on entering premises, which is to be considered the yard, represent 43%; leaving premises 24%, and while working on premises 33%.

Rabies

The doctor treats injuries; prevention is not his specialty. A few points on the "Pasteur Treatment" for rabies may be of interest. When the City Health Department receives notice of a dog bite, one of the field men investigates. In every case immediate cauterization of the wound with fuming nitric acid is recommended. Such treatment is more painful than the dog bite itself.

The dog is then put under observation for 10 days; in the cases where the owner will cooperate, the dog is left at home, chained and penned up. If the owner is considered negligent, the animal is removed to the City Pound. If the animal is infected with rabies, he will show definite signs within the 10-day observation period.

Legal Aspects

The following pointers on the "Legal Aspects of Dog Bites" have been summarized by the company's Safety Department.

"The responsibility of the customer is that he must provide the same protection to the employee entering his yard by contract agreement as he provides the casual passerby in front of the house if the dog were running loose.

"The duty of the customer is to restrain the dog if it is vicious.

"The doctrine of the first bite is no longer active, having been superseded by court rulings to the contrary.

"The employee is required not to attack the dog or to strike him until after the dog has made the initial attack. Responsibility rests in either case with the one making the initial move toward attack. This covers feeding the dog, ammonia pistols, and any other form of protection."

"Biter" Is The Word

The Los Angeles City Health Department refers to a dog as a *biter* instead of a bad dog, or a vicious dog. After they have impounded a dog for no license, etc., he may be released to a home or to a new owner if he has no record as a *biter*. If he does have such a record, he is put away.

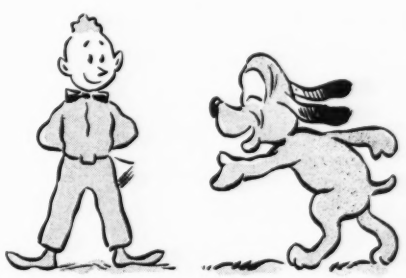
Tips to Servicemen: How To Deal With Difficult Dogs

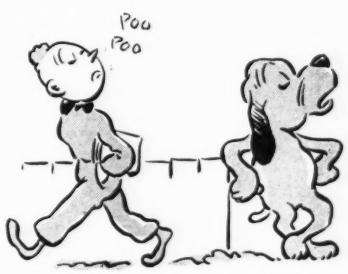
The following 10 suggestions on how to be relatively happy though bedeviled by customers' pets are gleaned from an article which originally appeared in the "Public Utilities Fortnightly." Cartoons courtesy the Southern California Gas Co.'s "Gas News-week Pictorial."

The average house dog will generally let you know right away that he is at home. Barking is the sign of normal dog reaction. A silent dog is more likely to be sick or really vicious. If the dog makes no attempt to follow up by approaching you and merely satisfying his curiosity to the extent of approaching just so far to see what you are about—let it go at that. Such a dog is not likely to harm you.

1. If the folks are home, have the dog confined.

That's the safest way, even though the dog appears friendly. The customer is not going to resent it if you make the request tactfully. You can make a friend or an enemy for life by just a remark about the customer's dog.





2. If his owner is not at home, ignore him, provided he ignores you.

3. Make friends only if he feels like it, and if you do too.

You can't fool a dog about such things. Scientists have speculated that a person in fear exudes certain odors which the dog detects. If you try to bluff confidence by making an attempt towards friendliness under such circumstances, you're quite likely to get nipped.

4. Let him make friends first; don't try petting him right off.

THE WARD POLICY— *Continuous* IMPROVEMENT

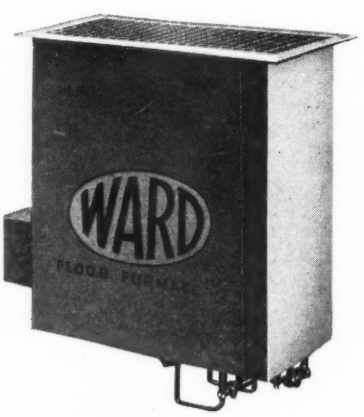
IN LINE with our progressive policy in manufacturing, we expect to announce important improvements to the Ward Furnace during 1947.

Ward pioneered the floor furnace back in 1909 and is responsible for many of the features that have made the floor furnace the efficient, economical appliance it is today.

We expect to continue to remain out in front. Our engineering staff is busy and our plant facilities have been expanded so as to provide not only a better furnace in the months to come—but *more of them.*

For the present—shipments will continue to be made only to our long-established dealers. However, we are looking forward to the day when we will be able to offer additional dealers the sales advantages of Ward Floor Furnaces.

38 YEARS OF "KNOW-HOW"



WARD HEATER COMPANY
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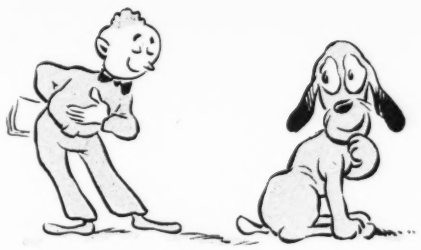
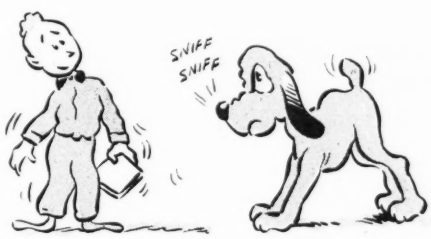
WARD
FLOOR FURNACES

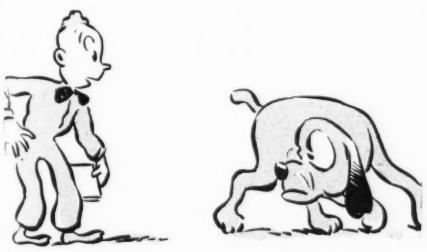


It is a fact that very many more dog lovers are bitten trying to pet strange dogs than folks who don't like dogs. They are the victims of self-conceit, springing from the impression that they can make friends with any dog. Aside from the fact that dogs have an inherent sense of dignity which human beings fail to recognize, they also have a strong sense of loyalty to their owners which makes them bristle at any attempts of strangers to tickle their ears or indulge in any other marks of affection reserved for their masters.



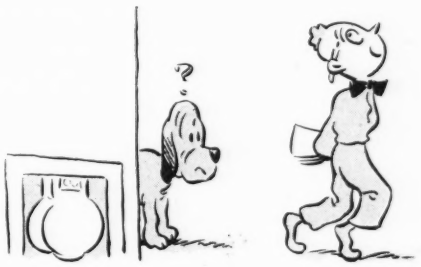
5. To make friends, stand quietly, put out your hand, and let him smell it.

There is a reason for every action suggested here. Standing quietly allays the dog's fears. Facing him shows you are not afraid even though he already knows that. Putting out your hand shows you want to be friends and are not harboring any hostile intentions. Above all, never approach a dog from the rear. When he is making the first advance he is very skittish and doesn't want to feel fenced in. The open hand is the best approach.



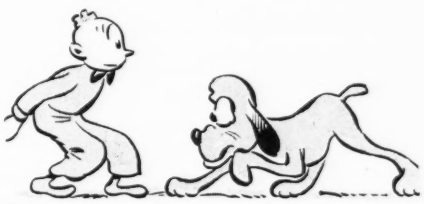
6. If he sniffs and walks off, or refuses to sniff your hand, let him alone.

This almost speaks for itself. The dog is simply telling you that you might be all right but he is keeping an eye on you; also, he isn't making friends that day.



7. Act as quietly and confidently as if you had a right on the premises; avoid sudden or suspicious motions or noises.

This also speaks for itself. Most people don't know it, but a dog is actually a conservative. He likes the established routine, not strange or upsetting experiences (such as house cleaning), or anything revolutionary.

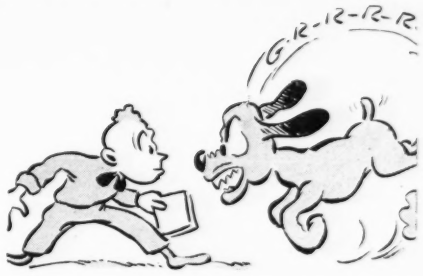


8. If the dog threatens to attack, face him down, then back away slowly—never turn your back or run off.

In "facing down" a dog you stand motionless for as much as a minute. Chances are good that the dog will start at you and then retreat. If so, you have licked him psychologically and he is not likely to bother you, but don't follow up the advantage. Leave him alone.

If, however, the dog should "freeze" and continue to glare at you for more than a minute, you'd better start backing away slowly, always keeping your face to the dog.

In the process of "facing down" a dog, try giving him commands, such as "go away" or "lie down," in a calm and authoritative voice. If, for obvious reasons, you can't manage a calm, authoritative voice at the moment, better not try it because an apprehensive squeak might make him even more upset. Chances are he won't obey you anyhow, but it's worth trying.



9. If the dog attacks, defend yourself with a stick or other object, if possible (avoiding direct use of hands or feet) . . . Charging toward the dog will get better results than retreating.

The reason for using an object preferably to defend yourself is because it is dog's nature (except, again in the case of a really mad dog or a trained killer dog) to go for the moving member of your body. If you use a stick, you'll distract the dog and he might even take out his bites on the stick itself, because—aside from the possibility of injuring the dogs—dogs usually respond to disciplinary blows about their body while a blow in the face might enrage him further.

There are no hard and fast rules for determining just when a dog is going to attack. About the only safe generality is that nobody was ever attacked by a dog while the dog was sitting down.

10. In case of any dog bite, always notify your company.

Most utility companies have established procedure for taking care of the case from then on. Many local authorities also require reports which the company will probably take care of.

They will then probably send an observer to examine the dog on the possibility of rabies. Nine hundred and ninety-three times out of 1000 there will be no rabies for the simple reason that confined house dogs usually do not contract the infection, which is more prevalent among running dogs.

Pushing 180 Feet of Pipe Under Six R.R. Tracks

By HORACE R. FRYE

WE RECENTLY were called upon to lay a 10-in. water main extension to serve a new factory being constructed by the Sentinel Radio Corp., Evanston, Ill. This extension involved the laying of 1300 ft. of 10-in., Class 150, centrifugal cast pipe. The interesting and unusual feature of this job was the pushing of the 10-in. bell-and-spigot cast iron pipe under six railroad tracks for a distance of 180 ft.

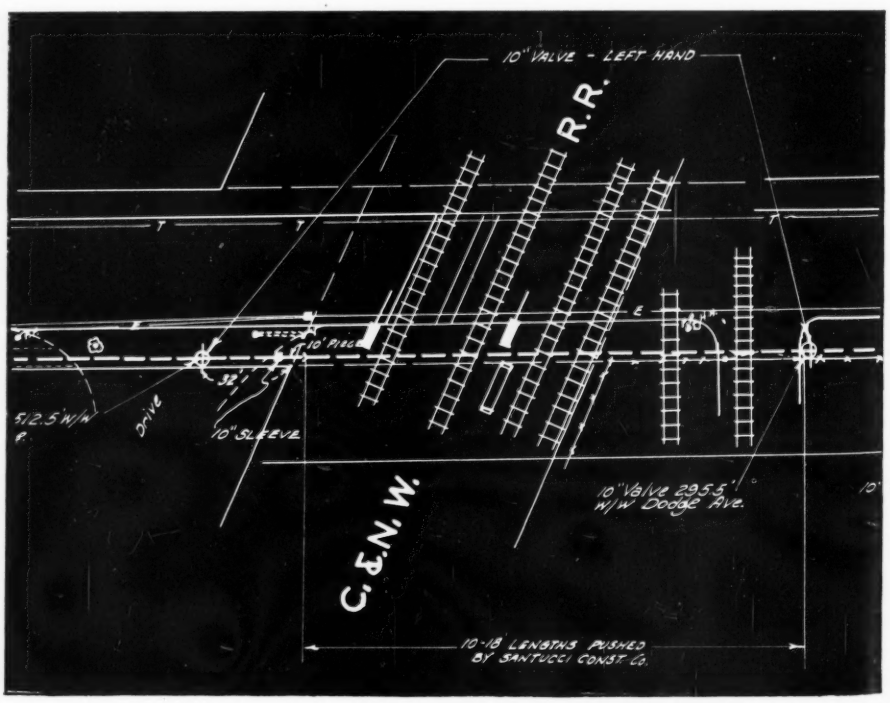
Several plans and estimates were prepared covering the various methods of installing the 10-in. cast iron pipe under these railroad tracks, giving due consideration to the cost, the obstruction of traffic (both railroad and highway), the danger to employees and other features connected with the work. If the pipe were installed by open trench methods, it would require a payment to the railroad for the supervision of a section gang all the time the work was in progress. The pipe line also parallels a state trunk highway at a distance of only a few feet from the concrete slab.

Special Technique

After all these features had been considered, a contract was let to the Santucci Construction Co. of Skokie, Ill.. for installing the section of main under the railroad tracks. Mr. Santucci has developed a special technique for pushing cast iron water pipes of almost any diameter under railroad tracks and highways with remarkable success. A specially designed 500-ton hydraulic jack is used for the pushing operation. The jack is provided with a 24-in. piston and the pumping operation is taken care of by a portable gasoline engine. A special steel box or trough is used for holding the jack and for guiding the first length of pipe next to the jack. This steel box is carefully installed in the trench at the side of the railroad tracks and aligned with levels as to grade and direction. Special stud bolts are used for aligning the pipe in the proper direction. After this guiding box and jack are placed in the trench and adjusted, the pipe can be jacked through the fill at the rate of 35 to 40 ft. in six hours' working time. The 180 ft. of 10-in. pipe was pushed under these six railroad tracks and arrived at the point of destination, being only one inch off.

Another job recently completed involved the jacking of 130 ft. of 16-in., Class 150, bell-and-spigot pipe under a railroad embankment in an adjacent suburb. This pipe was only off the pre-determined point by two inches. In this latter case, there was 18 ft. of cover over the pipe.

The spigot end of the pipe is used as the front of the column of pipe to be pushed. This spigot is protected by a heavy cast iron bull joint, turned up in a local machine shop, with a length of 12 in. and a diameter the same as the outside of the spigot. The soil for the 10-in. job was a wet yellow clay, while for the 16-in. job it was of a harder texture and of a blue clay mixture.



Courtesy Cast Iron Pipe Research Assn.

Cooking performance to please everyone

Hardwick Gas Ranges

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TOO EXPENSIVE FOR ONE

JUST RIGHT FOR EIGHT

NOT ENOUGH GADGETS, NOT EXPENSIVE ENOUGH FOR ONE

HARDWICK STOVE COMPANY
CLEVELAND, TENNESSEE
The Quality Line Since 79

ASSOCIATIONS

A.G.A. Regional Sales Conference Holds Top Spot on February Agenda

AFTER five dormant years, the Eastern Natural Gas Regional Sales Conference bows in again this month in a two-day session, Feb. 13 and 14, at the Roosevelt Hotel, Pittsburgh, Pa. The meeting is sponsored by the Residential Gas Section of the American Gas Association.

The subject of sales will be considered from half a dozen angles by more than a dozen experts in and out of the gas industry. Hot water heating and space heating promotion, conversion burner problems, market research, automatic gas cooking, refrigeration sales, and home service work will be some of the main topics to hold the stage at the conference.

The two-day program, as announced last month by Chairman F. B. Jones, Equitable Gas Co., Pittsburgh, includes the following talks:

"INDUSTRY PROBLEMS AND ROADS TO PROGRESS"

R. H. Hargrove, president, American Gas Association; vice president, United Gas Pipe Line Co., Shreveport, La.

"YOU'RE GOING TO BE IN HOT WATER"

W. J. Schmidt, general sales manager, Long Island Lighting Co., Mineola, N. Y.; chairman, A.G.A. Water Heating Committee.

"WHAT ABOUT GAS HOUSE HEATING?"

Raymond Little, general sales manager, Equitable Gas Co.; chairman, A.G.A. House Heating and Air Conditioning Committee.

"A SOLUTION FOR THE CONVERSION BURNER PROBLEM"

W. H. Wise, manager sales engineering, Peoples Gas Light & Coke Co., Chicago, Ill.

"GOOD MARKET RESEARCH AND LOW COST SALES"

Lyman Hill, 1946 president, American Marketing Association; director sales research, Servel, Inc.

"THREE HUNDRED MILLION MESSAGES"

W. B. Hewson, publicity and advertising manager, The Brooklyn Union Gas Co., Brooklyn, N. Y.; member of A.G.A. National Advertising Committee.

"SHARPER SELLING TOOLS"

Speaker to be selected.

"MEETING THE AUTOMATIC COOKING CHALLENGE WITH GAS"

E. Carl Sorby, vice president, Geo. D. Roper Corp., Rockford, Ill.

"HOME SERVICE IN ACTION"

(In Two Parts)

Chairman, Flora Dowler, home service director, The Manufacturers Light & Heat Co., Pittsburgh, Pa.

Part 1

"HOME SERVICE PARTICIPATES IN NEW FREEDOM GAS KITCHEN PROGRAM"

Kathryn Barnes, home service director, Equitable Gas Co.

Part 2

"HOME SERVICE COOPERATES WITH SCHOOLS AND COLLEGES"

Helen Kirtland, home service director, Ohio Fuel Gas Co., Columbus, Ohio.

"GAS REFRIGERATION TODAY AND TOMORROW"

A. D. Howard, assistant sales promotion manager, Servel, Inc.

"PEOPLE AND MONEY"

Donald Thompson, vice president in charge of research, Federal Reserve Bank of Cleveland, Ohio.

"THERE'S GOLD IN THEM THAR DOORBELLS"

A. C. Fox, district manager, Fuller Brush Co., Pittsburgh, Pa.

A.G.A. Announces Appointments

FIVE committee chairmanships, a vacancy on the board of directors, committee memberships, and a post in the New Freedom Gas Kitchen Bureau were filled by appointments made during the past month in the American Gas Association, according to announcements of President R. H. Hargrove and Managing Director H. Carl Wolf.

Arthur F. Bridge, vice president and general manager of the Southern Counties Gas Co., Los Angeles, heads four new appointees to the Managing Committee of the Testing Laboratories. He succeeds George E. Whitwell, vice president in charge of sales of the Philadelphia Electric Co., who served five consecutive years during the war, following a record of 13 years work with the committee.

Others named on the committee are Charles E. Bennett, president, The Manufacturers Light & Heat Co., Pittsburgh, Pa., who takes over the vice chairmanship, a position newly created to facilitate handling of laboratory activities; George F. Mitchell, president, The Peoples Gas Light & Coke Co., Chicago, and Elmer F. Schmidt, vice president and operating manager, Lone Star Gas Co., Dallas, Texas.

A.G.A. APPOINTEES

A. F. BRIDGE
Chairman
Managing Comm. A.G.A. Testing Laboratories

N. E. FRENCH
Chairman
Rate Committee

W. H. SENYARD
Chairman
SW Personnel Conference

N. D. JENNINGS
Asst. Director
New Freedom Gas Kitchen Bureau

Finance and Control

Five new appointments to the Finance and Control Committee were also announced, with F. H. Lerch, Jr., president of the Consolidated Natural Gas Co., New York, being named new chairman. The four memberships went to James A. Brown, vice president, The Commonwealth and Southern Corp., New York; R. E. Ramsay, president, New Haven (Conn.) Gas Light Co.; Paul R. Taylor, vice president, Stone and Webster Service Corp., New York; and P. S. Young, chairman of the executive committee, Public Service Electric and Gas Co., Newark, N. J.

Newell E. French, manager of the rate department of the Equitable Gas Co. and Duquesne Light Co., Pittsburgh, was given the rate committee chair by President Hargrove. He will

head a group of rate and valuation experts who are conducting a continuing study of rate structures and related matters.

For chairmanship of the A.G.A. Technical Advisory Group for Gas Water Heating Research, F. M. Banks, chairman of the Committee on Domestic Gas Research, chose Arthur Friedman, vice president of the Cleveland Heater Co., Cleveland, Ohio. Friedman, who succeeds L. R. Mendelson, was recommended by Gas Appliance Manufacturers Association.

W. H. Senyard, personnel director of the Louisiana Power and Light Co., New Orleans, was elected chairman of the A.G.A. Southwest Personnel Conference to succeed H. D. Carmouche, superintendent of pipe lines, Houston (Texas) Pipe Line Co. Selection of Senyard was made by a mail vote, it was announced.

Assisting Senyard will be Willard S. Weigel, personnel director, Lone Star Gas Co., Dallas, who will serve as vice chairman, and the new secretary, R. S. Collings, relations director, United Gas Corp., Houston, Texas.

Filling the unexpired term of the late Charles M. Cohn on the board of directors of the A.G.A., Henry R. Cook, Jr., vice president, Consolidated Gas Electric Light Co. of Baltimore, Baltimore, Md., was elected at the Dec. 4 meeting of the board, according to an announcement by Hargrove.

New assistant to H. Vinton Potter, director of the New Freedom Gas Kitchen Bureau of the association, is Norval D. Jennings of Greenwich, Conn. A graduate of Yale, Jennings worked before the war for Gulf Oil Corp., Socony-Vacuum, Inc., and Talon, Inc., specializing in foreign markets in England, Portugal, and Africa while with Socony-Vacuum. From December, 1940, to December, 1946, he was in the Army Air Corps, where he established an outstanding combat record, followed by extensive public speaking on the postwar military organization.

Mid-Continent Oil & Gas Group Reelects Officers

The Mid-Continent Oil & Gas Association, at a meeting in Tulsa, Okla., Jan. 13, reelected the following six officers for another year:

Frank M. Porter, Fain-Porter Drilling Co., Oklahoma City, president; Jake L. Hamon, Cox & Hamon, Inc., Dallas, first vice president; E. F. Bullard, Stanolind Oil & Gas Co., Tulsa, vice president for Oklahoma; Henry E. Zoller, Derby Oil Co., Wichita, vice president for Kansas; A. H. Weyland, Arkansas-Louisiana Gas Co., Shreveport, vice president for Louisiana and Arkansas; Van S. Welch, Welch & Yates, Inc., Artesia, vice president for New Mexico; and Clarel B. Mapes, Tulsa, general secretary-treasurer.

New Type Program for Industrial, Commercial Gas Conference Planned

A NEW twist in program arrangement for the three-day A.G.A. Sales Conference on Industrial and Commercial Gas, to be held at the Copley Plaza Hotel in Boston, March 17-19, was announced last month by Harry A. Sutton, program chairman. The entire first day will be devoted to commercial problems, the second day will present subjects of common interest to both commercial and industrial phases of the industry, and the third day will see industrial gas in the spotlight.

A. H. Sutton

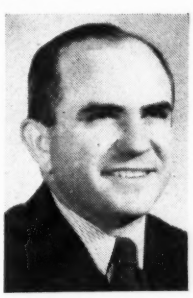
R. H. Hargrove, A.G.A. president, and George R. Harrison, dean of science at Massachusetts Institute of Technology, will be featured speakers at the second day's luncheon, according to the announcement. That day's program will also include a reception in the late afternoon, to be given by the Gas Appliance Manufacturers Association.

Of particular interest will be the address by Prof. Harrison, who will discuss "Industry and the Atom."

Another March event on the Industrial and Commercial Gas Section calendar is the A.G.A. Gas Cooking Center which it will sponsor at the National Restaurant Exposition, Hotel Stevens, Chicago, March 25-27. The Center will be an interesting spot for the commercial gas men and appliance manufacturers who will be exhibiting the latest in restaurant equipment.

John Kern Succeeds Carl Swigart As Assistant Manager of PCGA

JOHN EDMOND KERN, a veteran of 24 years in the gas industry, was last month appointed assistant manager of the Pacific Coast Gas Association, it has been announced by Leroy M. Edwards, PCGA president. The appointment was necessitated by the retirement next June 30 of Carl Swigart, trade relations representative of the association, whose duties Kern will assume.



J. E. Kern

In addition to the work which Swigart was doing as trade relations man and secretary of the Manufacturers Section of the association, Kern's new position will entail work in all phases of PCGA activities, assisting Managing Director Clifford Johnstone. He will also engage in the appliance sales promotion and upgrading program being planned by the section.

Like Swigart, Kern will make his headquarters in Los Angeles.

Since August, 1945, when he resigned his position as general supervisor of appliance and dealer sales in the Southern California Gas Co., Los Angeles, Kern had been associated with Ralph Stowers in the gas and electric appliance business in Pasadena, Calif.

A mechanical engineering graduate from Purdue University in 1922, in 1924 he went to California, joining the Midway Gas Co. as rate and appraisal engineer. When that company merged with Southern California he entered the commercial and industrial sales field, and later had experience as refrigerator engineer, in which capacity he helped market Servels soon after their introduction.

Oil & Gas Group Asks Act Changes

THE recently formed National Oil & Gas Committee of the Independent Natural Gas Association of America, through B. A. Hardey, Shreveport, La., independent producer, and Joseph W. Bowes, Oklahoma Natural Gas Co., Tulsa, Okla., co-chairmen, has issued a statement recommending the following amendments to the Natural Gas Act:

1. Deny to the Federal Power Commission any authority to regulate production and gathering, the price at which the gatherer and the producer

SKINNER-SEAL
SERVICE SADDLE

FOR MAKING
SERVICE CONNECTIONS
—QUICKLY, EASILY!

Standard of the industry for nearly half a century. Made in both steel and cast iron pipe sizes.

The delivery situation is improving slowly but it is still spotty—we therefore suggest placing orders as far in advance as possible.

M. B. SKINNER COMPANY, SOUTH BEND 21, INDIANA, U. S. A.

SKINNER-SEAL SERVICE SADDLE

sells gas, and for what purpose natural gas may be sold or used.

2. Rigidly limit the jurisdiction of the Federal Power Commission to interstate trunk line transportation of gas and to the sale of gas after such transportation is completed for resale for public consumption.

3. Preserve existing state regulatory power over distribution, production and gathering of gas.

John A. Ferguson, executive director of the association, states that the committee has been formed for the express purpose of advising members of the oil and gas industry following the FPC gas investigation, and to present to Congresssional committees any necessary information relating to the investigation.

May Date Set for Gas Appliance Short Course

The advisory committee for the second annual Gas Appliance Short Course has set the date for the 1947 meeting tentatively at May 27-30. Dr. F. T. Gardner, director of the course, has announced.

The Southern Gas Association is sponsoring the course, which will be held at the University of Tulsa, as last year. Members of the committee are:

D. E. Frieden, Zenith Gas System, Inc., Alva, Okla.; R. R. Suttle, Southern Gas Association, Dallas, Texas; Carl E. Cloud, Oklahoma Natural Gas Co., Tulsa, Okla.; L. A. Bickel, Lone Star Gas Co., Dallas: H. N. Oldham, Southern Union Gas Co., Carlsbad, N. M.. and Doctor Gardner, professor of chemistry, University of Tulsa.

Martin Leaves Poe, Joins GAMA as Statistics Chief

GAMA's managing director, H. Leigh Whitelaw, has announced the appointment of Edward R. Martin as chief statistician for the association. Until 1944 Martin was supervisor of statistical activities for A.G.A. in New York. Following this, he became affiliated with Servel., Inc., Evansville, Ind., as chief marketing statistician. Immediately before accepting the GAMA position, he was associated with E. Holley Poe and Associates.

E. R. Martin

CALENDAR OF ASSOCIATION ACTIVITIES

February

New England Division, Public Utilities Advertising Association — Parker House, Boston, Feb. 5-6.

American Gas Association Residential Gas Section, Eastern Natural Gas Sales Conference — Roosevelt Hotel, Pittsburgh, Pa., Feb. 13-14.

March

American Society of Mechanical Engineers Spring Meeting—Tulsa, Okla., March 2-5.

American Gas Association Residential Gas Section, Mid-West Gas Sales Conference—Edgewater Beach Hotel, Chicago, March 17-18.

A.G.A. Sales Conference on Industrial and Commercial Gas—Copley-Plaza Hotel, Boston, March 17-19.

New England Gas Association—Boston, March 20-21.

Gas Appliance Manufacturers Association, Hotel Restaurant & Commercial Gas Equipment Division—Stevens Hotel, Chicago, March 24.

National Restaurant Association Convention — Stevens Hotel, Chicago, March 25-27.

April

American Gas Association—Edison Electric Institute Accounting Conference—Hotel Statler, Buffalo, N.Y., April 7-9.

Mid-West Gas Association Annual Meeting and Convention — Hotel Paxton, Omaha, Nebr., April 7-9.

National Association of Corrosion Engineers Annual Convention—Palmer House, Chicago, April 7-10.

American Gas Association Distribution and Motor Vehicle Conference—Hotel Cleveland, Cleveland, Ohio, April 14-16.

Gas Appliance Manufacturers Association Annual Meeting — Drake Hotel, Chicago, April 14-16.

Southern Gas Association—Biloxi, Miss., April 16-18.

Natural Gasoline Association of America, 1947 Convention—Baker Hotel, Dallas, April 23-25.

Gas Meters Association of Florida-Georgia — Boca Raton, Fla., April 25-26.

U. S. Chamber of Commerce Annual Meeting—Washington, D. C., April 29-May 1.

American Gas Association Natural Gas Department Spring Meeting—Stevens Hotel, Chicago, April 30-May 2.

May

Industrial Gas School—Hotel Seneca, Columbus, Ohio, May 5-9.

Southwestern Gas Measurement Short Course—University of Oklahoma, Norman, Okla., May 6-8.

Commercial Gas School—Washington D. C., May 12-16.

Indiana Gas Association—French Lick Springs Hotel, French Lick, Ind., May 15-16.

Pennsylvania Gas Association — Wernersville, Pa., May 20-22.

Gas Appliance Short Course—University of Tulsa, Tulsa, Okla., May 27-30.

June

American Gas Association Joint Production and Chemical Committee Conference—Hotel New Yorker, New York City, June 2-4.

Canadian Gas Association—General Brock Hotel, Niagara Falls, Ontario, Canada, June 9-11.

American Gas Association Residential Gas Section, New York-New Jersey Gas Sales Conference—Essex and Sussex Hotel, Spring Lake, N.J., June 23-24.

September

American Society of Mechanical Engineers, Fall Meeting—Salt Lake City, Utah, Sept. 1-4.

Pacific Coast Gas Association 1947 Convention—Coronado, Calif., Sept. 23-25.

American Gas Association Annual Convention—San Francisco, Calif., Sept. 29-Oct. 3.

McElhoes Chosen Head of Oklahoma Utilities Group

Officers and directors of the Oklahoma Utilities Association were elected at a recent meeting of the board of directors, as follows:

S. I. McElhoes, Public Service Co. of Oklahoma, Chickasha, president; L. A. Farmer, Northern Oklahoma Gas Co., Ponca City, first vice president; Malcolm Morrison, Oklahoma Gas & Electric Co., Oklahoma City, second vice president; E. C. Joullian, Consolidated Gas Utilities Corp., treasurer; Miss Kate A. Niblack, Oklahoma City, secretary.

Directors, three year term: McElhoes and W. R. Thomas, Southwest Natural Gas Co., Ada.

Directors, one year term: Joullian, R. K. Lane, Public Service Co. of Oklahoma, Tulsa; J. Y. Wheeler, Lone Star Gas Co., Ardmore; A. F. Potter, Gas Service Co., Bartlesville, and W. L. Woodward, Zenith Gas System, Inc., Alva.

Directors, holdovers: Farmer, J. C. Happenny, Oklahoma Power & Water Co., Sand Springs; D. S. Kennedy, Oklahoma Gas & Electric Co., Oklahoma City, and Frank B. Long, Oklahoma Natural Gas Co., Tulsa.

The 1947 convention of the association will be held March 20 and 21 at the Tulsa Hotel, Tulsa, Miss Kate A. Niblack, secretary, announces.

FPC May Relax Controls on Expansion

THE Federal Power Commission has announced a proposed new plan under which it will relax substantially commission controls over improvements and extensions of facilities by natural gas companies. The aim is to simplify certificate procedures by eliminating those incident to certain improvements and enlargements of facilities to existing customers of natural gas companies.

A letter from FPC Chairman Nelson Lee Smith, which accompanied a description of the plan, invites industry suggestions with respect to perfecting the necessary definitions and other details involved in its adoption. After consideration of the suggestions, the commission expects to adopt an appropriate order on the matter. The recommendations are part of the staff report on the G-580 investigation, made available in advance of the completion of the entire report, so that the commission may proceed as rapidly as possible with the simplification of its administration of the certificate provisions of Section 7 of the Natural Gas Act.

General Rule Urged

Section 7 (f) of the Act provides that the commission may determine "service area within which a natural gas company may enlarge or extend its facilities for the purpose of supplying increased market demands . . . without further authorization." The proposal contained in the investigation staff report is that the authority conferred upon the commission by subsection (f) be exercised by adoption of a general rule, rather than according to specific determinations of a "service area" for each natural gas company based on a series of special proceedings conducted for that purpose.

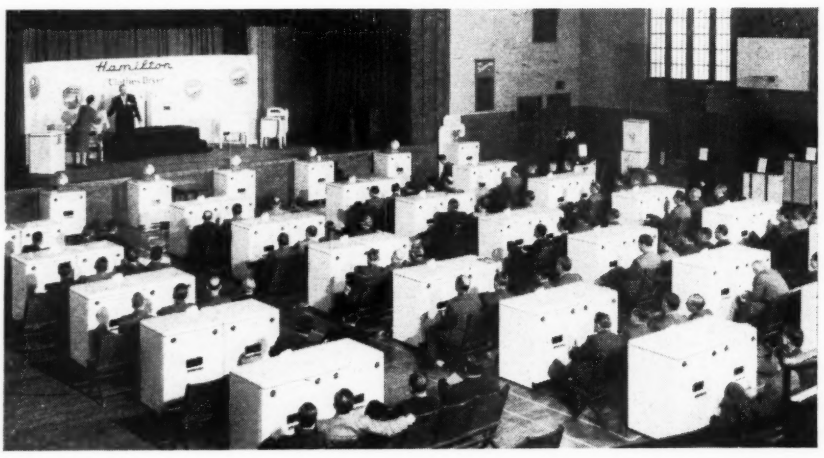
It is proposed that the commission, by general rule, permit natural gas companies under the Act to proceed without specific authorization in providing any additional facilities not involving increased delivery capacity which may be necessary for improving service to their customers, and also in enlarging their facilities, within prescribed limits, for the purpose of serving the increased demands of present customers in the markets already occupied and served.

Facilities of an incidental character required for extending service to various new customers, involving additional loads not exceeding 50 Mcf per day in each instance, also would be included under this proposed rule. The report proposes that such permission as to enlargements of facilities under subsection (f) be limited to an additional 10% of the system capacity of a company in any one calendar year, with provision that the commission be informed 20 days in advance regarding any extensions under this rule, in order that the commission may be kept fully and currently informed regarding all property changes. Provision also is made for the suspension of and hearing upon such proposed extensions of facilities, either on proper protest or the commission's own motion.

"The central question presented in applying Section (f) with reference to 'service areas'," the report stated, "is the extent to which enlargements of facilities by natural-gas companies should be permitted without specific authority conferred by certificates of public convenience and necessity. The extent of such enlargements without specific authorization, not the marking out of some geographical area as such, is the matter of real significance. Reorientation of the problem along these lines would seem to be in accord with the public interest and with the indicated intention of Congress to provide reasonable latitude to the companies in improving or enlarging their facilities in step with requirements of the markets which they serve. This conclusion finds support in the position taken by the industry in statements and testimony cited.

"Adoption of a general rule permitting limited additions of facilities, without specific authorization, for the service of existing customers will: (1) Relieve the companies of the necessity of obtaining certificates for necessary additions to facilities on a limited scale; (2) relieve the commission from the burdens incident to passing on applications for such facilities, thus enabling it to concentrate its efforts on matters of greater public consequence; (3) provide greater assurance to customers presently served by natural-gas companies of adequate and timely additional facilities to meet their increasing requirements."

Distributors At Round Table



FROM all parts of the nation, 92 distributors of Hamilton Automatic clothes dryers attended a Distributors' Round Table, conducted at Two Rivers, Wis., Jan. 2-4, by the Hamilton Manufacturing Co. During the three-day meeting, production, allocation, sales and advertising plans for 1947 were discussed. Distributors were conducted through the Hamilton plant to observe the manufacture and assembly of the dryer. In addition, a service school was conducted by Kenneth L. Johnson, company service manager.

William A. Friedrich, director of sales, home appliance division, was in charge of the round table conferences. More than 50 gas and electric Hamilton dryers were placed on the auditorium floor beside the distributors' chairs, for inspection and reference during the discussions, as shown in the photograph above.

A modern sequence-type home laundry where clothes were washed, dried and ironed in a series of demonstrations by Mrs. Cleo Foley, of the Ironrite Ironer Co., was arranged on the stage.

THE NEW

SPRAGUE *Zephyr*

ALUMINUM METER

Here is the answer to the long-sought-for meter, one that does not contain a single ounce of needless weight, yet is strong and dependable. Sprague's complete line of Zephyr meters are manufactured in five sizes. Write for your copy—*Bulletin 24A.*

THE SPRAGUE METER COMPANY
BRIDGEPORT
CONN.

Bacteria Boost Oil Recovery

A PATENT has been issued to Dr. Claude E. ZoBell, associate professor of microbiology at the University of California, for an improved process for increasing or facilitating the recovery of oil, gas, or other valuable fluids from subterranean deposits, through the use of certain types of bacteria. Dr. ZoBell assigned the patent to the American Petroleum Institute for the free use of the public.

In March, 1943, while testing bacteria for their ability to modify crude oils, Dr. ZoBell observed that certain cultures released droplets of oil from test tubes filled with calcareous material prepared to simulate underground oil-producing formations, and some bacteria were able to release oil from samples of Athabaska tar sands and Santa Maria oily shales.

The API Advisory Committee on Occurrence and Recovery of Petroleum, to whom the observations were reported, sponsored the work as part of one of its fundamental research projects. During the past two years, the Pennsylvania Grade Crude Oil Association, a non-profit organization, has been cooperating in the investigations, attempting to apply the discovery to the recovery of oil under field conditions.

Laboratory experiments have indicated that bacteria can release oil from oil-bearing sediment by dissolving calcareous materials, by crowding the oil off physically, and by producing surface-active substances. Carbon dioxide produced by the bacteria and the increased porosity caused by dissolving calcareous materials both favor the flow of oil.

Although the value of this discovery is yet to be determined, it is a significant by-product of the research program sponsored by the API and the University of California. Copies of the patent (No. 2,413,278) may be obtained from the U. S. Patent Office, Washington, D. C., at 25 cents each.

OIL AND GAS CHIEF INSTALLED

Max W. Ball, at left, new director of the Oil and Gas Division of the Interior Department, receives congratulations from Secretary J. A. Krug, as Mrs. Ball looks on. The occasion was Ball's formal induction ceremony in Krug's office on Jan. 3. Ball succeeded Ralph K. Davies, ex-director of the Petroleum Administration for War, who had been acting head of the division since PAW expired.

Cities Service Co. Appeals Wellhead Price Fixing Order to State Court

THE Cities Service Gas Co. has appealed to the Oklahoma state supreme court the recent order of the Oklahoma Corporation Commission increasing the price of natural gas at the well in the Guymon-Hugoton field of Oklahoma from 4 to 7 cents per Mcf.

The commission, upon application of Cities Service Gas Co., issued a supersedeas order, suspending operation of the order pending decision by the supreme court. Cities Service and other leading producers in the field, including Peerless Oil & Gas Co., and Republic Natural Gas Co., gave bonds to protect lease and royalty holders in case the higher price is sustained by the court.

Homer W. Long, Guymon, president of the Texas County Land and Royalty Owners Association, announced that members of that organization will no longer accept the 4 cents per Mcf price but will stand on the 7 cents per Mcf price fixed by the corporation commission order. If the state supreme court fails to sustain the commission price fixing order, the royalty owners then will start suits in state district courts for the higher price, Long announced.

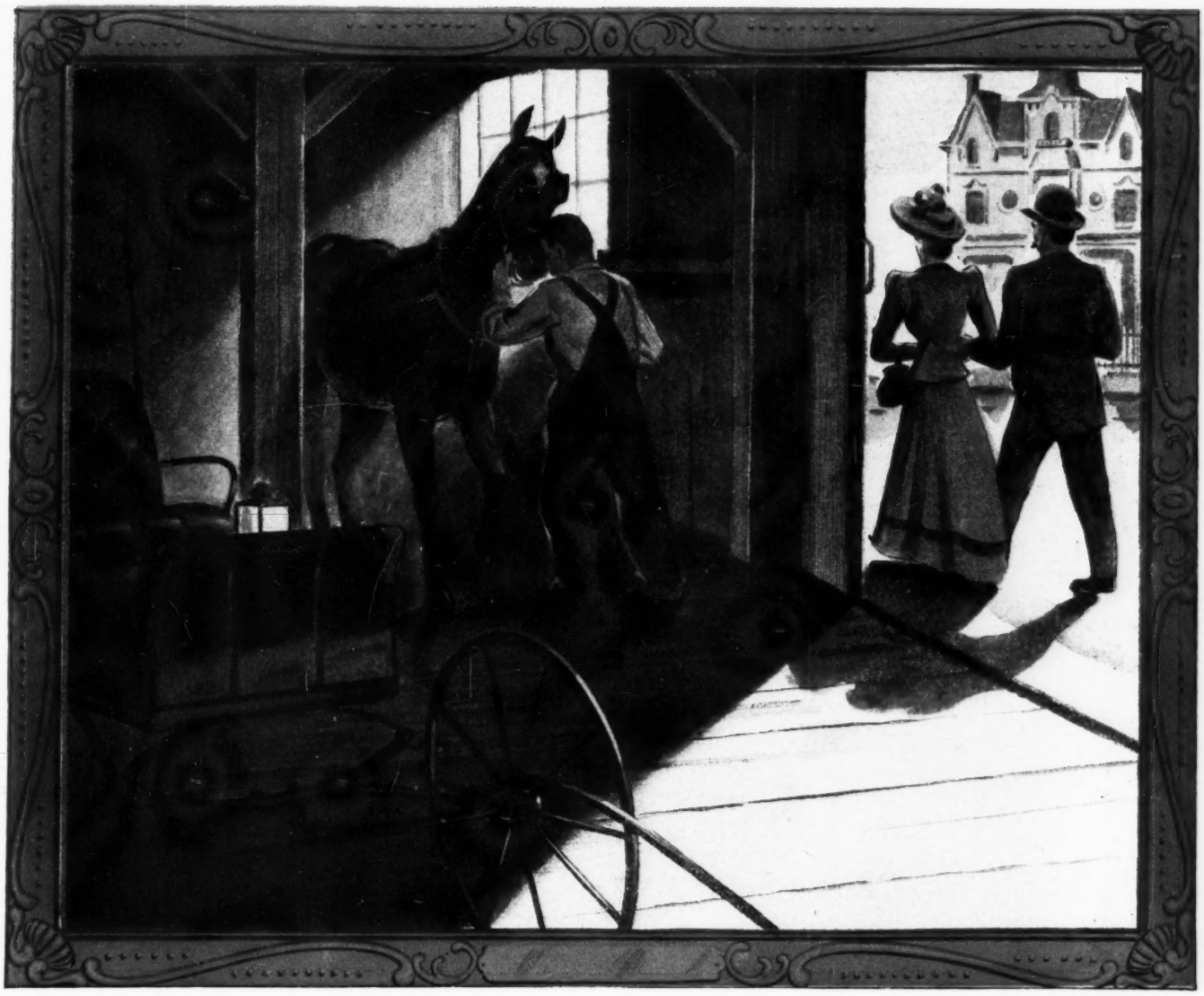
Phillips Petroleum Co., Bartlesville, has joined in the opposition to the commission order. The Phillips application cites that on April 5, 1943, the company contracted with Panhandle Eastern Pipe Line Co., dedicating 175,000 acres of leases in the Oklahoma and Texas sector of the field for sale of its allowable production at a price of 4 cents per Mcf on a pressure base of 16.4 lbs. for the first five years, with certain increases thereafter. Gas was to be delivered at a plant in Hansford county, Texas.

The company contends that if the commission order stands, it cannot comply with its contract with Panhandle Eastern at a higher price, and therefore would be forced to shut in its wells, since the contract would not permit selling to other purchasers.

FPC Defers Hearing on Texas-New York Line

The biggest independent Texas-New York pipe line plan ever to be filed before the FPC will not have a hearing until March at the earliest, according to the commission. The application to spend $130 million building its own "Big Inch" line to move Texas gas to the Eastern Seaboard was filed by Trans-Continental Gas Pipe Line Co., Inc., of Longview, Texas.

The corporation offered the government $40 million for the Big and Little Inch lines, but the bid was rejected. President Claude Williams, of Austin, states in the application that the company has contracts for sale and purchase of 325 MMcf of natural gas per day. Operating at a minimum average load factor of about 92%, the average daily sales are estimated at 300 MMcf.



Can you title* this picture?

Humorous? Maybe—but with a serious note, too. One of the safest predictions anybody can make for the next few years is the end of the seller's market and the return of *Competition.* Which means selling instead of order-taking, customer-soliciting instead of priority lists—and something more: *Quality.* Americans will be again shopping —in the truest sense of the word—comparing value with value, brand with brand. Which adds up to a sound reason for recommending and selling Gordon Spreader-Flame conversion burners, made by the company which pioneered the gas conversion industry and still makes the most efficient, most dependable burners in the business.

GORDON BYDAND

spreader-flame conversion
GAS BURNERS

"The Buggy Ride is Over!"

ROBERTS-GORDON APPLIANCE CORP., 137 ARTHUR ST., BUFFALO 7, N. Y.

Big Inch Input Grows; New Outlets Added

NEW mouths to feed and new sources to tap were added during December and January to facilities controlling the gas load which now pushes its way through the Big and Little Big Inch lines from Texas to the Midwest and Central Eastern states. From a 50 MMcf-per-day start on Dec. 5, the lines have steadily increased their carry until, as of Jan. 16, they were transporting 105 MMcf per day to no less than six major distributors in six Northern states.

By Jan. 25, as GAS went to press, the throughput was expected to reach 150 MMcf, which is the estimated capacity of the lines without benefit of additional compressor stations.

Five companies, as of Jan. 16, had joined in supplying the 24-in. line. Largest input was credited to the Lone Star Gas Co.'s Carthage Field, Texas, facilities, which were contributing 61 MMcf per day to the total. In order to make this possible, the Texas Railroad Commission early last month granted an emergency increase of 60 MMcf per day in the field's allowable, this amount being deducted from Lone Star's February ration.

Second Source

Carthage was the second source to be tapped, its flow starting Dec. 9. First input was from the transmission line of the Tennessee Gas and Transmission Co., lessee of the "Inches," on Dec. 5.

The other three companies and the dates on which their gas was added to the line, included:

Dec. 13—Hunt Oil Co., from their wells in Lucky Field, La. This field, not previously in production, was to deliver up to 44 MMcf per day. It is located in northwestern Louisiana.

Jan. 12—Paul Pewitt, Jefferson, Texas.

Jan. 16—Hunt Oil Co., Jefferson, Texas.

The Tennessee and Lucky connections were made to the Little Big Inch; the other sources delivered to the Big Inch.

(An order issued Jan. 20 by Conservation Commissioner Joseph L. McHugh of Louisiana "recalled, set aside, and revoked" an allowable issued by his department Jan. 4, for production of 50 MMcf per day from the Hunt wells in Lucky Field. This amount was being turned into the Little Big Inch line for export, in what was termed "violation of the state's gas policy."

The state policy, voted by the legislature in 1942, declares that using gas in competition with coal is a "flagrant waste" of Louisiana's main source of fuel.

McHugh based his action upon the opinion that the allowable to produce the gas was illegal, as a public hearing after 10 days notice was not held, as required by the conservation law of 1940.

McHugh claimed the permit to produce the added volumes for export was issued by C. P. Smitherman, Shreveport district manager of the conservation department, without McHugh's knowledge.)

The new Texas input was from the Harelton Field, northeast of Longview.

15 MMcf From Lisbon

Additional volumes were to be turned in from the Lisbon Field, in northern Louisiana, which was scheduled for an input total of 15 MMcf per day.

Recipients of the gas were seven distributors in the Midwestern and Appalachian areas, in accordance with the terms of the FPC-approved lease. Largest single distributor is the Columbia Gas & Electric Corp., serving three states, Ohio, West Virginia, and Pennsylvania, with a total daily allowable —during the period of the 105 MMcf per day flow—of 41.5 MMcf. Others included:

Carnegie Natural Gas Co., serving western Pennsylvania, 3.5 MMcf.

Consolidated Natural Gas Co., serving Pennsylvania, Ohio, and West Virginia, 20 MMcf.

Equitable Gas Co., serving western Pennsylvania, 12 MMcf.

Panhandle Eastern Pipe Line Co., serving Ohio, Indiana, Michigan, and Illinois, 20 MMcf.

National Fuel Gas Co., serving western Pennsylvania, 8 MMcf.

Louisville Gas & Electric Co., Louisville, Ky., 1.5 MMcf.

Delivery to the Louisville concern was approved Jan. 15 under a provision of the FPC allocation order, which held that "for all deliveries of 100 MMcf or more, 5 MMcf shall be apportioned to systems not named herein on a basis to be recommended by Tennessee for approval by the commission." The systems "named herein" included the first six companies listed above.

Furthermore, under terms of the order, Tennessee Gas and Transmission was directed to deliver 20 MMcf to Panhandle Eastern, and of the balance 50% to Columbia, 25% to Consolidated, 10% to National, and 15% to Equitable.

Among ultimate consumers of the Inch gas are residents of cities as far north as Buffalo.

Allowances Pared

Allowances were, of course, considerably lower than the volumes applied for. Equitable, for example, had requested 50 MMcf as an initial output to relieve the fuel crisis during the recent coal strike, with a 25% allowance for the balance of the winter.

Ratios were based upon recommendations made by the Industry Advisory Committee, the body named by the FPC to set up equitable allocations, following its three-day meeting in Washington, D. C. These ratios are subject to adjustment, according to FPC.

Census of Gas Meters in All U. S. Cities Considered

GAMA has announced that if sufficient interest is expressed in a comprehensive compilation showing the number of gas meters, related to communities of the United States having populations in excess of 2500, the association will attempt to assemble this information.

It is estimated that it would cost approximately $8000 to finance such a project and to make the report of use to manufacturers. GAMA suggests that gas characteristics tabulated would be more inclusive than from any other source and might be valuable to production departments for spudding purposes. Such a survey might represent the basis for sales programs.

The A.G.A. gathered similar information from its membership as of Jan. 1, 1946, and has replies from companies serving about 86% of the meters in the U. S.

GAMA Clarifies "CP"

GAMA advertisements appearing this month in a number of home economists' magazines will publicize "automatic gas ranges built to 'CP' standards" and manufacturers' brand names, in an attempt to change the industry from thinking and talking about "CP" ranges as though "CP" were a private brand. Part of the copy reads, "Select the individual manufacturer's model which best suits your needs—but make sure that it bears the 'CP' seal."

Underground Gasifying Tested in Alabama

A UNIQUE experiment in testing the underground gasification of coal was scheduled last month in a corner of the Gorgas mines, west of Jasper, Ala. Milton H. Fies, Alabama Power Co., Birmingham, is the consulting engineer in charge, and A. C. Fieldner, chief of the Explosives and Fuel Section of the Bureau of Mines, and several of his experts are cooperating on preparations for the trial.

The technique being tested is said to be in use in Russia, but Soviet engineers have not supplied essential details concerning subterranean reactions.

In a report to GAS on the progress being made, Mr. Fies stated: "At Gorgas we had an ideal situation. We have taken a narrow peninsula of coal with a seam 36 in. in thickness, which we cut off from the remainder of the property with an open cut; shaved off the sides of the peninsula so that we could drive short observation cross-cuts, leaving only 4-ft. pillars, to within 3 ft. of the area which will be burning. We expect to drill holes through the pillars, use pyrex glass with cooling apparatus, and thus observe what is going on.

"The experiment is being conducted under very thin cover and it is likely that we shall have considerable trouble from this source; but, as stated, we sacrificed many considerations in order to see what is happening."

When all preparations have been made, the seam will be ignited and a large blower will propel air into the channel to accelerate combustion. Two tanks will collect samples of the gases generated. Instruments placed in tubes inside the holes will record reaction.

Bureau of Mines experts have predicted that when the seam is burning freely, a temperature of 2000° F may be reached. The government bureau is more interested in the by-products than in the gas itself, since for many years it has been experimenting with the production of gasoline and other fuels from coal gas.

The Alabama Power Co., which is financing the experiment, operates a coal-burning steam plant for generating electricity about a mile from the Gorgas mines.

Plumbers Start Gas Sales Drive

MASTER plumbers of Portland, Ore., have put themselves on record as favoring gas water heating over other types, and have affixed their names to 85,000 mailing pieces to prove it.

At a kickoff dinner, members of 40 Portland firms recently launched a selling program designed to strengthen the position of gas as a fuel in that Northwest city. According to officials of Portland Gas & Coke Co., which is cooperating with the Portland Master Plumbers Association, Inc., in the drive, the move by the plumbers in taking an open stand for gas is unprecedented.

The mailer contains four pages on which are listed the advantages of automatic gas water heaters, together with an open letter from the association. The folder promises "immediate delivery from your master plumber," whose name appears on a list of 40 firms. Affixed to the folder is a business reply card. Addressed to the association, the cards are distributed to the plumber selected by the customer, or, if no choice is indicated, to the plumber whose shop is located nearest to the customer's home.

Active in organizing the promotion campaign were A. O. Leech, the utility's manager of commercial and industrial sales, and Fred Kimball, promotion manager.

Shown in the photograph are officers and directors of the association gathered at the dinner. From left, they are: J. B. Lewis, Theo. Roy, Martin Morlan, Jack Howk, Frank Burfitt, and Arthur H. Bohren, president.

RUSSIAN CLAIM TO PIPE DENIED

A COURT action, started several months ago when Gov. Warren of California, in a wire to the State Department, charged that A. O. Smith Corp., Milwaukee, had given preferential position to an order for pipe which he claimed was placed by the Russian government, was ended with a decision of the U. S. district court of Western Texas. Warren stated that the filling of the Russian order would delay construction by El Paso Natural Gas Co. of the Texas-California pipe line.

The court hearing revealed that, although A. O. Smith had no order from the Russian government, it did have an order placed by the U. S. Treasury Department for UNRRA, prior to the El Paso order. The UNRRA order was to be delivered to the Ukraine district of the USSR. The Treasury Department cancelled its order before the hearing.

The court decision approved a stipulation presented by A. O. Smith and five other large domestic companies, setting forth a plan for the allotment of Smith's production of pipe. A further ruling stated that Russia had no legal rights in the matter.

Under the stipulation, El Paso Natural will receive 341 miles of its original order for 764 miles of pipe.

It was announced early last month that Consolidated Steel Corp., Los Angeles, received an order from El Paso Natural for fabrication of 100 miles of 26-in. pipe for delivery in 1947, at a cost of $2½ million. Consolidated already had a contract from Southern Counties and Southern California Gas Co.'s for 214 miles of pipe for the Texas-California line.

High Pressure Condensate Return

For High Pressure Space Heating

By J. P. TURNER

Cochrane Corp.,
Philadelphia, Pa.

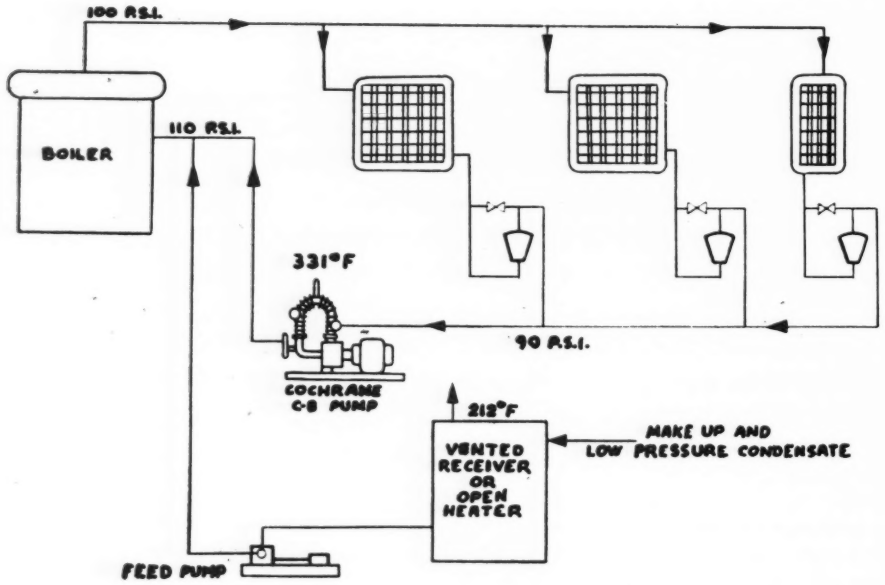


Fig. 1. Installation diagram of a typical high pressure condensate return system applied to space heating.

IN high pressure heating of commercial and industrial buildings, factories, foundries and warehouses, condensate from the blast heaters is usually returned to a vented receiver or open heater. With unit heaters operating at 100 psi, this condensate leaves the heating coils at about 90 psi, which corresponds to 331° F. Assuming a typical heating load as 100 gal. per minute (48,000 lb./hr.), the loss of steam in flashing from 331°F. to 212° F. in an open hot well would amount to 6240 lb./hr. at the established rate of 13% for this pressure differential. If steam can be generated at 32 cents a thousand pounds, which is a fairly economical cost, the loss of steam amounts to $48 in a 24-hour day.

In addition the remaining condensate, 41,760 lb./hr., in dropping from 331° F. to 212° F. loses 121 Btu/lb. (from steam tables). This heat loss totals 5,050,000 Btu/hr. and is equal to the amount of heat contained in 4250 lb. of 100-psi steam. At 32 cents a thousand pounds, the additional loss is $32.60 in a 24-hour day.

Recovering The Heat

One method of recovering this heat is by returning the condensate at high temperature and high pressure directly to the boiler against boiler pressure as rapidly as it is formed. Ordinary feed pumps are not capable of handling the mixture of air and hot condensate. The condensate at close to vaporization temperature tends to flash and bind the pump.

In the Cochrane C-B high pressure condensate return system a specially designed centrifugal pump draws water from the thermo-fin priming loop and discharges it as a high velocity jet through the jet pump nozzle. This jet strikes the returned hot condensate and induces condensate flow through the Venturi-shaped mixing tube and into the thermo-fin priming loop. The additional volume of condensate introduced into the constantly filled loop results in the discharge of an equal volume through the air separator to the boiler.

Little Pressure Drop

The hot condensate and entrained air are drawn rapidly and positively from the heating coils by the jet pump. Air is eliminated from the circuit by passing through the air separator and the condensate is returned to the boiler at maximum temperature and pressure. Thus, the circuit from boiler, through equipment, and back to boiler is completed in a closed system without substantial drop in temperature. Performance of the unit is verified by the pressure gauge on the inlet together with the pressure gauge and thermometer on the outlet.

The return system repays its cost several times over. In new systems. amount of radiation can be reduced due to the higher heat available from individual space heaters.

In a large foundry savings of $1635 were made in an average winter month on a 240 gpm heating load at 75 psi. A similar record is being obtained in a 125 psi system extending over a number of widely separated individual buildings with excessively long return lines.

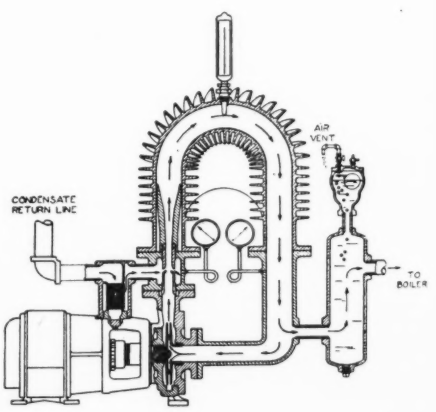
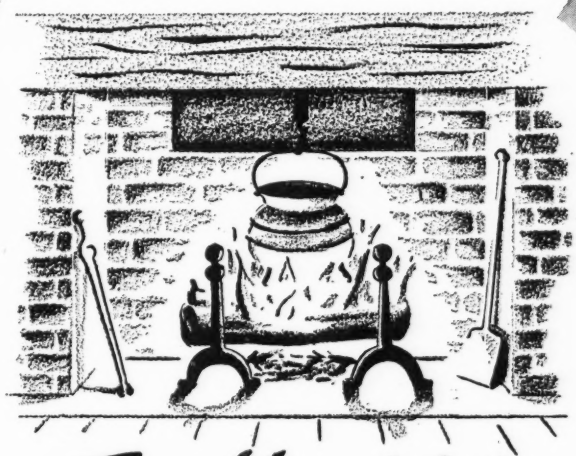
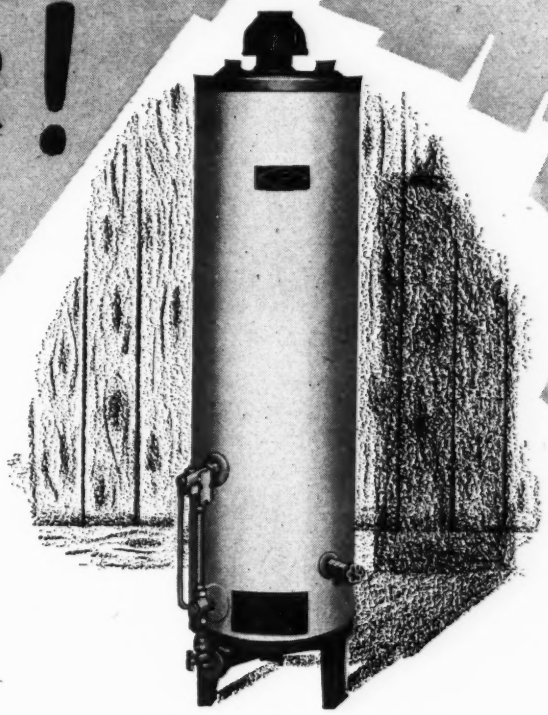


Fig. 2. Diagram showing flow of condensate through high pressure condensate pump.

HOT WATER!





The Hard Way

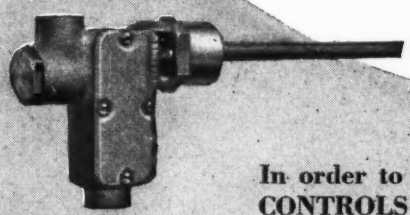
In great grandmother's day water was heated over an open fire—in the fireplace for cooking purposes—outdoors for laundry, butchering and other tasks requiring lots of hot water. Heating the water was a job in itself.

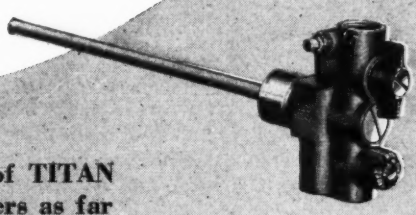
The Easy Way

Nowadays the modern housewife just turns the faucet and has plenty of hot water for all purposes from an Automatic Hot Water Heater—without work for anyone. This is one of the greatest labor saving achievements of the last 100 years.

Millions of additional homes will be equipped with Automatic Hot Water Heaters during the next few years. Be sure your customers get the best installation possible by equipping your heaters with

TITAN
WATER HEATER CONTROLS





In order to be sure of adequate supplies of TITAN CONTROLS we suggest that you place orders as far in advance of your needs as possible.

THE TITAN VALVE & MANUFACTURING COMPANY

9913 ELK AVENUE • CLEVELAND 8, OHIO

TECHNICAL TRENDS

By GUY CORFIELD

Our Patent System

A RECENT article in "Chemical and Engineering News" (Vol. 24, No. 22, Nov. 25, 1946, Page 3027), entitled "The American Patent System and Industrial Research: Some Managerial Aspects," by Casper W. Ooms, U. S. Commissioner of Patents, brings out some thought-provoking points that should be of great interest to those engaged in or associated with any branch of technology. Mr. Ooms defines a patent as "a document granted to an inventor as a reward for disclosing his invention which confers upon its owner the right to exclude others from the practice of a specified invention for a limited time and teaches the principles of that invention to others."

He reminds us that "the patent system is established pursuant to a provision of the United States Constitution empowering Congress to grant patents for limited times to inventors for the purpose of promoting the progress of science and the useful arts." He discusses the argument as to whether the present system does or does not stimulate inventiveness; he thinks it does, but points out that there are other incentives to which people respond and that "it has been proposed and, in fact, Russia has long operated its patent system along this line, that the inventor be given other awards than a patent as a reward for his invention."

Looking into the future, and at the possible need for a change in our patent system, Mr. Ooms states that: "The pace of technical development throughout the industrial world is quickening so perceptibly that we may expect astonishing inventions in many fields, inventions that may threaten entire industries or that may barricade a whole art. Shall we now, before the facts are all before us, blindly say that the patent system which has served us so well in the past must meet such situations unaltered and regardless of the economic consequences, or shall we face each new fact in the economic world with the same readiness to adapt it to our own use as we face each new fact in the physical world? In other words, shall we remain masters of all the institutions man has devised for his own utility or shall we resign ourselves to be mastered by them? At least we must remain as ingenious as our forefathers were when they framed the patent system as an *exception* to the prohibition of monopolies. Is it difficult today to conceive of a single invention in the field of atomic energy which, if patented, might so dominate an area of that field that numerous improvements and vast activities could be forbidden by the patent owner? That such an invention may appear in our generation is not improbable. In that event would we be content to entrust to a single patent owner so extensive a power . . . for 17 years? Or could we compromise our history of devotion to the exclusive grant with the realities of a problem never foreseen and so arrange matters that the inventor might be assured adequate compensation and assured also that his exclusive right, in some narrow field where the public interest is not completely under his control, would be protected, while the broad, basic and dominating principle of his invention could be licensed to others so that the people will not be denied the benefits of the invention?"

ASTM Committee D-3

THERE are probably many in gas industry circles who do not know the detail of the formation, organization, and work of the American Society for Testing Materials Committee D-3 on Gaseous Fuels. This Committee was formed in late 1935 under the chairmanship of A. C. Fieldner, U. S. Bureau of Mines. In 1940, A. W. Gauger, Pennsylvania State College, assumed the chairmanship. The work of this committee, to supervise the preparation of laboratory standards for the testing of gaseous fuels, is of extreme interest to the gas industry, as will be seen by the following list of its seven subcommittees:

1. *Collection of Gaseous Samples.*
2. *Measurement of Gaseous Samples.*
3. *Determination of Calorific Value of Gaseous Fuels.*
4. *Determination of Specific Gravity and Density of Gaseous Fuels.*
5. *Determination of Impurities of Gaseous Fuels.*
6. *Determination of Water Vapor Content of Gaseous Fuels.*
7. *Complete Analysis or Chemical Composition of Gaseous Fuels.*

As is the case with all ASTM activities, the participants represent every type of interested and related industry, and, as would be expected, many well-known technical gas men are members of Committee D-3. R. M. Conner, Director of the American Gas Association Testing Laboratories, is its secretary.

While an enormous amount of effort is necessary to bring together the views of diversified groups, the results are all the more valuable because of the varied experiences which they reflect. The work has been proceeding steadily, somewhat slowed down but not stopped during the war period, and considerable valuable data are being accumulated. Subcommittee 111 has even progressed to the point where its first "Tentative Standard" has been prepared, approved and issued. This publication, "Tentative Method of Test for Calorific Value of Gaseous Fuels by the Water Flow Calorimeter, ASTM Designation: D 900 - 46 T, 1946," became available a few weeks ago.

PROMOTIONAL NOTES AND NOTIONS

By STANLEY JENKS

Factual Advertising

DURING the dimout years, I often wondered whether the great American proletariat would ever again be simple enough to fall for the advertising hooey poured on it so abundantly in the pre-war era. But I see we are already back drinking well-weathered whiskey and Hoosit's genial gin, so it won't be long before we are sleeping so restfully on millenarian mattresses and achieving health anew, breakfasting on those so-oo crisp, so-oo crunchy, so-oo tasty, so-oo rich-in-vitamins ZIP cereals in the popular polychromatic packages. Yes, sir! The advertising lads are already polishing up their superlatives, and tripping the light fantastic through the glamorous glades of slogans, punch lines, and reader appeal. It is an amusing prospect to the initiated, and, if the ad boys are right—and they usually pay off on results—a sad commentary on the mental development of the masses on whom we depend for our gross revenues. I prefer to think that the great American proletariat—Mr. and Mrs. John Q. Public, who live next door—have more brains than they are given credit for. I feel that they are hungry for facts, stated simply and often. As far as gas appliances are concerned, we had our fling during the war years with cupids and angelic butlers riding on clouds. The justification then, it was claimed, was that we had to go above the clouds, created by competitive advertising, to find our customers. The realists on the A.G.A. Committee of National Advertising can be trusted not to repeat. In fact, the current A.G.A. national advertising is excellent because it is insistently factual. If it gets the local support it merits, the battle of the fuels is off to a good start.

Never Anxious

AND talking of battles, Field Marshal Montgomery, a man who won some very critical ones, once said during the war:

> *"I am never anxious when I fight my battles. If I am anxious, I don't fight them. I wait until I am ready."*

The record shows how thoroughly Montgomery made his preparations. He anticipated every probable contingency, never gambled beyond the limits of sound judgment, and therefore never got himself and his armies into jams where he was forced to resort to unsound tactics. In other words, he made it odds-on betting before he started anything.

That's the way it should be in a gas appliance sales campaign. Are any good bets being passed up? Dealers anxious to play ball? Promotional advertising and literature available and placed to the best advantage? Stocks adequate? Installation facilities able and ready? All salesmen pepped up, sold on their product, and aware of the opportunity to "clean up" that is theirs?

Adequate preparation can save many premature gray hairs and tummy ulcers.

The "Montgomerys" of the gas industry have a vitally important job ahead of them, and coming up probably much sooner than current conditions indicate.

Outsiders, Stay Out!

A MANUFACTURER of gas equipment, who has been selling the gas industry for better than 50 years, comes up with this one.

He tells it to me, because he feels it illustrates a condition unfortunately still existing in, shall we say, the more reactionary sections of the industry. He asked me to respect his anonymity, so to start off we'll call his product a "gimmick." One is needed on every gas service. During the last 50 years, hundreds of thousands of gimmicks have been installed, and have accordingly successfully stood the test of time. My manufacturing friend has a backlog of thousands right now, and has a list of satisfied purchasers through the years as long as your arm.

A couple of months ago, he was astounded to receive a request for return of a shipment of his gimmicks from a distributor, who had purchased them for installation in a new housing development, located in new territory as far as the manufacturer was concerned. Why? he asked. The answer he got was that the local gas utility said the gimmick was no good, and would not approve it on its lines. This, mind you—no good—after being used in substantial quantities for many years throughout the utility industry. So my manufacturer friend wrote the utility, asking for specific reasons for their rejection. The answer listed only one reason. Mark this. The utility surely had the right to decide what equipment is to be used on its service. Period.

A local distributor is denied a profit. A housing development is held up (gimmicks are still in very short supply), but a little guy proved his importance.

Radar Cooking

IN that this is the alleged age of miracles, nobody, especially a gas man, is going to be particularly surprised at the recent announcement of a new electrical appliance in production. It works on the radar principle and (*ho-hum*) cooks an entire meal in less than a minute.

By next week, expect an atomic appliance that cooks a whole meal in a second, and at a cost less than that of a paper match.

And don't say you haven't been warned.

NEW PRODUCTS

Single Unit Chart Hub

American Recording Chart Co., 3113 E. 11th St., Los Angeles 23, Calif.

Model: Arcco - Macnick "Speed-Lok" Chart Hub.

Application: Fits nearly all tapered arbor chart clocks, replacing the old two-piece hub. Saves time in changing charts.

Description: Consists of a single unit integral with the clock, without loose parts to be handled when charts are changed. Therefore, there are no parts to drop, damage or lose. Place the chart on the hub, turn the knurled nut to the right and three hidden fingers appear to lock chart securely in the desired position without damage to the center hole. A turn to the left of the knurled nut releases the chart. This locking device is a patented exclusive feature.

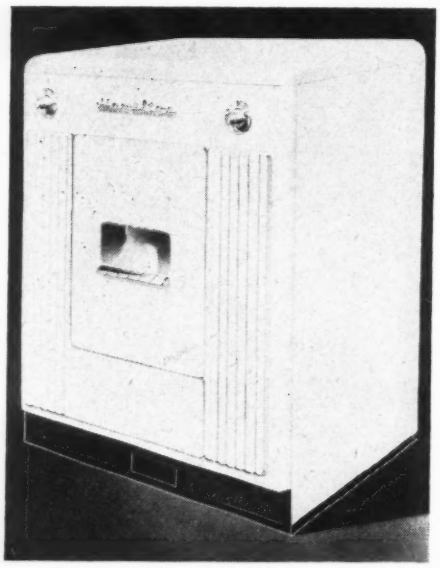
Automatic Clothes Dryer

Hamilton Manufacturing Co., Two Rivers, Wis.

Model: No. 700-G.

Application: For wet, damp-dry or bone dry finishing. Dryer operates on manufactured, natural, mixed or bottled gas. Input is 20,000 Btu per hour. Requires ½ in. I.D. gas supply line.

Description: Clothes are placed in a slowly revolving perforated drum. Baffles in the drum carry the clothes to the top, from which point they float downward through a pool of warm, clean, moving air, thermostatically controlled. A timer switch permits the drum to revolve for five minutes after the large burner is shut off, thereby cooling the clothes. They may be removed from the dryer at the operator's convenience. A manually operated switch controls a lamp which floods the interior of the drum with light so the action of the clothes may be observed through the glass window in the door.



The steel, enamel-coated cabinet is completely insulated. Most localities will not require venting the dryer oven to a flue. Moist air is expelled through the exhaust duct and lint catcher into the room. Drying time for the average 12 lb. wet load (6 lb. dry load) is 15-25 minutes for damp-dry (ready for ironing), and 30-35 minutes for bone dry.

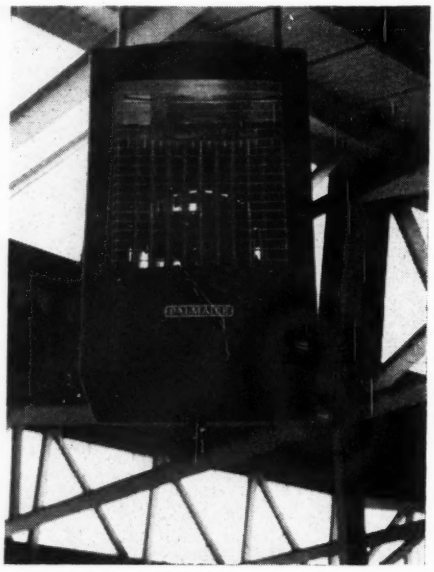
Suspended Unit Heater

Palmer Manufacturing Corp., Phoenix, Ariz.

Model: Palmaire.

Application: Designed primarily to save floor space.

Description: The streamlined, one-piece welded cabinet, made of heavy gauge steel, hangs from the ceiling, permitting full use of store or factory floor space for merchandising or machinery. No central heating plant is required and no duct system is necessary. The heater can be equipped with thermostatic control to provide automatic temperature regulation. Air deflectors are adjustable. A sliding, drawer-type assembly for the controls and burner make the heater easy to inspect and keep clean. A fan-type unit with output of 100,000 Btu is now in production.



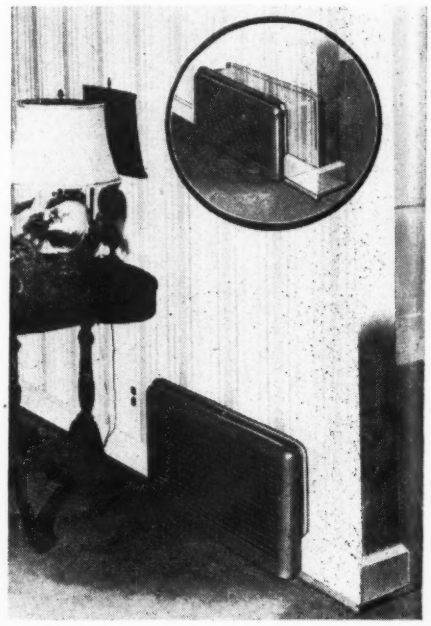
Midget Home Furnace

Heater Division, Stewart-Warner Corp., Indianapolis, Ind.

Model: South Wind Midget Furnace.

Application: Fits between studs or joists of houses and, since it is the size of a suitcase, can be hidden away in each zone of the house. Each heater has capacity sufficient to heat about two and one-half rooms.

Description: This stainless steel midget furnace is 30 x 14 x 9½ in. and can be installed or serviced by one man. It may be placed beneath the floor, in the floor, in the ceiling, in the attic or above the top shelf in a closet, as well as recessed in a wall between two rooms. Zone temperature control results in comfortable living and in fuel savings. Through "modulated control" heat output is automatically adjusted to the needs of the room. Products of combustion are carried through a pipe for discharge out the side of the house or through the roof. A.G.A.-approved electric spark ignition is used instead of the old pilot flame.



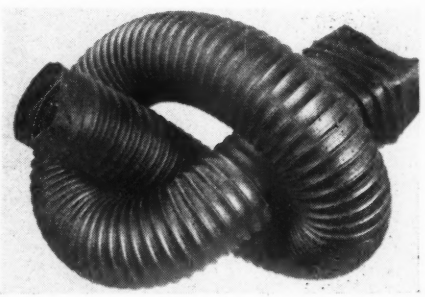
Flexible Hose

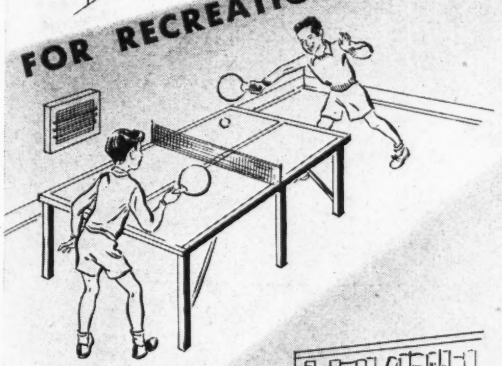
American Ventilating Hose Co., 15 Park Row, New York 7, N.Y.

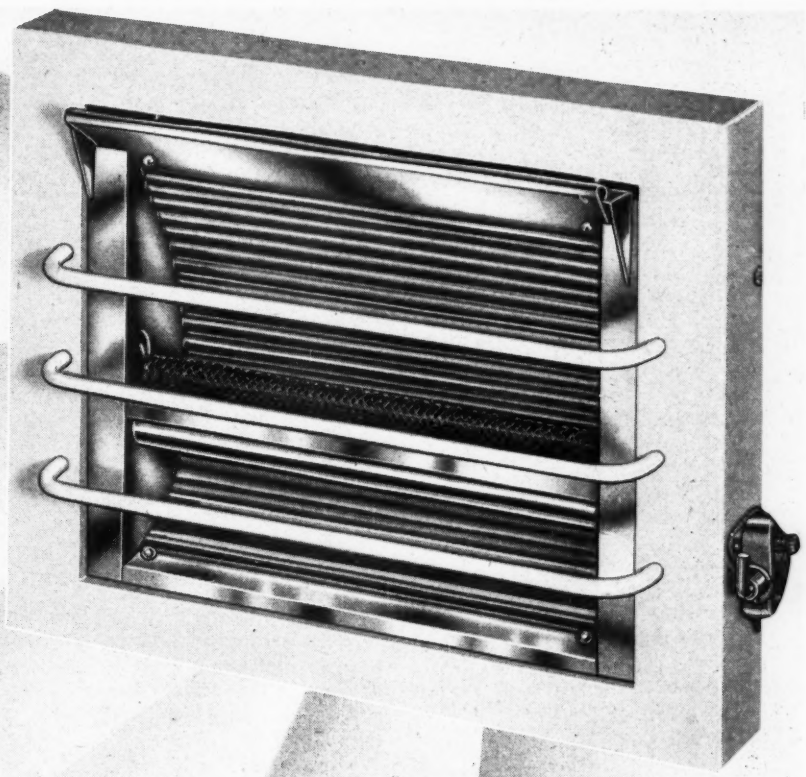
Model: Continuous Wind Process Hose.

Application: The light-weight spiral wire reinforced hoses and accessories are being manufactured by the Continuous Wind process. The hose may be used for ventilating purposes and in fume and dust control.

Description: Using neoprene pre-coated fabrics, this new process provides for the manufacture of continuous hose lengths in any required diameter from 1 in. to 24 in. It simplifies construction changes that may be necessary to secure various degrees of flexibility, compressibility and crushing resistance. Cuffs, bushes, reducers or flanges can be permanently attached to any of the hose lengths if required, thus facilitating and simplifying the connections on many types of industrial equipment, particularly those having outlets of different size or shape.







HUMPHREY Rafire WALL HEATER

New comfort for your customers is assured with the Humphrey Rafire Wall Heater. This smartly styled, efficient heater is ready on a minute's notice to supply a generous amount of pure, radiant heat. Wherever EXTRA heat is needed — for bathroom, living room, recreation room, kitchen or den — the Rafire Wall Heater is ideal for meeting this demand.

A specially designed efficient burner quickly heats the Chromel heating element to a beautiful incandescence, and a sparkling Chrome reflector radiates the heat directly into the room. The Rafire Wall Heater is of all metal construction, quality built throughout. Operates equally well upon Natural, Manufactured, and Liquefied Petroleum gases.

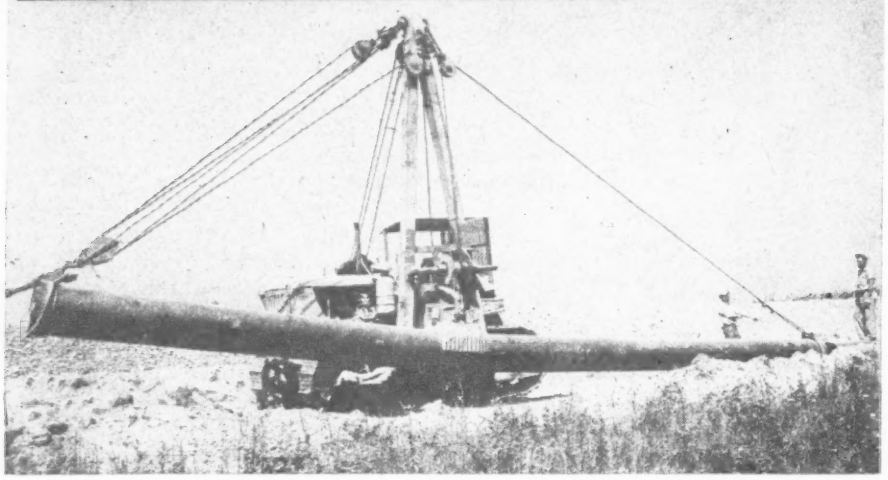
GENERAL GAS LIGHT COMPANY

KALAMAZOO, MICHIGAN

23 WARREN ST., NEW YORK CITY — 2ND UNIT SANTA FE BLDG., DALLAS — 225 ELEVENTH ST., SAN FRANCISCO

A HUMPHREY PRODUCT

OPERATING IDEAS



MACHINE for BENDING PIPE "COLD"

THIS PIPE BENDING machine was an important factor in the construction of the 20-in. line through Pennsylvania, recently completed by Manufacturers Light & Heat Co., Pittsburgh. The rugged terrain necessitated numerous fields bends. (Courtesy C. J. Poole, editor, "News & Views.")

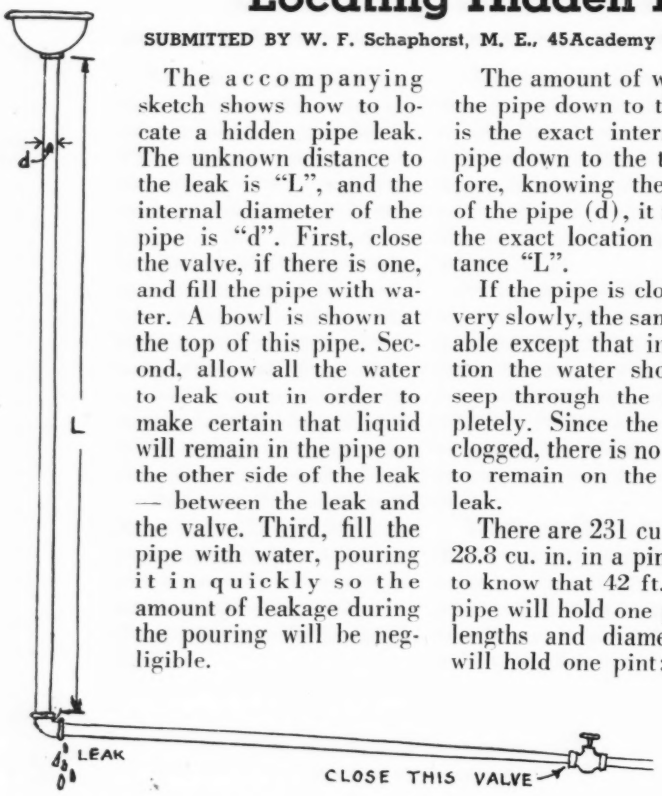
The pipe was bent cold by using a special "shoe." A clamp, designed for the purpose, is placed on each end of the joint. Hoisting cables are attached to the clamps, and the pipe is hoisted to press against the under side of the shoe at the point where the bend is to be made. Position is obtained by lengthening and shortening the cables.

The shoe looks like a gigantic hand bearing down on the joint. It is immovable in the operation. The power is thrown on, the cables pull the pipe mightily against the shoe, and the pipe bends.

The bending foreman's experienced eye is his gauge in determining how much curve is needed.

Locating Hidden Leaks

SUBMITTED BY W. F. Schaphorst, M. E., 45Academy St., Newark, N. J.



The accompanying sketch shows how to locate a hidden pipe leak. The unknown distance to the leak is "L", and the internal diameter of the pipe is "d". First, close the valve, if there is one, and fill the pipe with water. A bowl is shown at the top of this pipe. Second, allow all the water to leak out in order to make certain that liquid will remain in the pipe on the other side of the leak — between the leak and the valve. Third, fill the pipe with water, pouring it in quickly so the amount of leakage during the pouring will be negligible.

The amount of water required to fill the pipe down to the point of leakage is the exact internal volume of the pipe down to the trouble spot. Therefore, knowing the internal diameter of the pipe (d), it is easy to determine the exact location of the leak at distance "L".

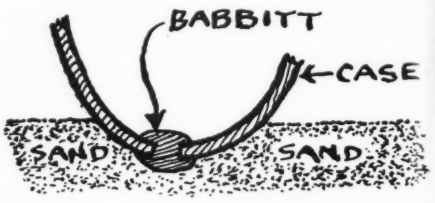
If the pipe is clogged and operating very slowly, the same method is applicable except that in the second operation the water should be allowed to seep through the clogged spot completely. Since the pipe is definitely clogged, there is no necessity for liquid to remain on the other side of the leak.

There are 231 cu. in. in a gallon and 28.8 cu. in. in a pint. It is useful, also, to know that 42 ft. of ⅛-in. standard pipe will hold one pint. The following lengths and diameters of pipe each will hold one pint: 23.2 ft. of ¼-in., 12.6 ft. of ⅜-in., 7.9 ft. of ½-in., 4.5 ft. of ¾-in., 2.78 ft. of 1-in.

Closing Holes With Babbitt

SUBMITTED BY W. F. Schaphorst, M.E., 45 Academy St., Newark, N. J.

Although welding is superior to babbitting for closing holes, the accompanying sketch shows a method for closing holes in castings. It is recommended for temporary work when no welding equipment is available. For this quick method ordinary babbitt



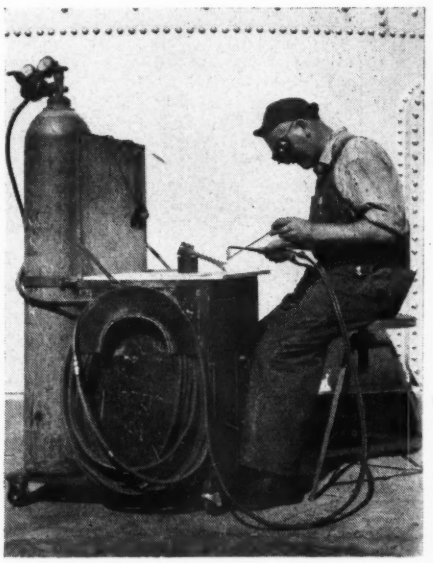
metal may be employed, but lead or similar metal having a low melting point can be used just as well.

Place the broken part in a box of sand, as illustrated. Push away enough of the sand from the edge of the hole so that the babbitt will securely clamp around the hole and catch both sides. Then pour the babbitt. Make sure that the sand is dry.

Portable Welding Outfit

SUBMITTED BY Lauran G. Clapp, San Diego Gas & Electric Co., San Diego, Calif.

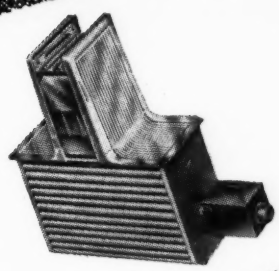
The machine shop of the San Diego Gas & Electric Co. has designed and built a portable welding outfit complete in itself. The unit, mounted on rollers, is equipped with a gas tank, a holder for the coil of hose, a mag-



nesite work table plus drawers and a small cabinet for tools.

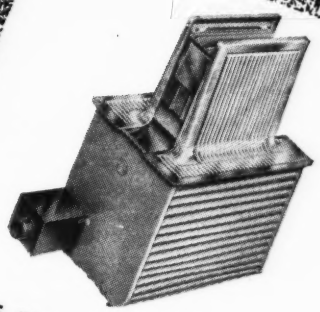
The outfit was conceived by Dave Kaiser and was built in the shop under the direction of foreman Chick Aillaud. It is easily moved about the yard and saves both time and labor in the completion of welding jobs.

Now, You Can Sell ALL THREE Floor Furnace Markets

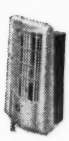


STANDARD DUAL WALL FURNACE . . . Heats rooms on both sides of the wall, and is so well designed, that no papering or replastering is EVER necessary to install it. Fits easily into new or old homes. This Rheem wall furnace solves the heating problem for a whole lot of your customers . . . and this brings new profits to you.

FLAT REGISTER FLOOR FURNACE . . . Built to fit the majority of heating needs, the Rheem flat register has a handsome streamlined grille . . . complete safety built-in . . . and new, easy installation features that will make it one of your fastest selling units.



SPACE SAVER WALL FURNACE . . . Newly designed grille uses only 9½ inches of floor space . . . and heats rooms on both sides of the wall. Its compact design makes it ideal for homes where floor space is limited.



Here are two other great Rheem gas heating appliances. The handy gas wall heater brings quick, radiant heat to bathrooms and other small rooms. The Rheem gas console heater is the easy answer to heating spare rooms, workshops or cellar playrooms. Both A.G.A. approved.

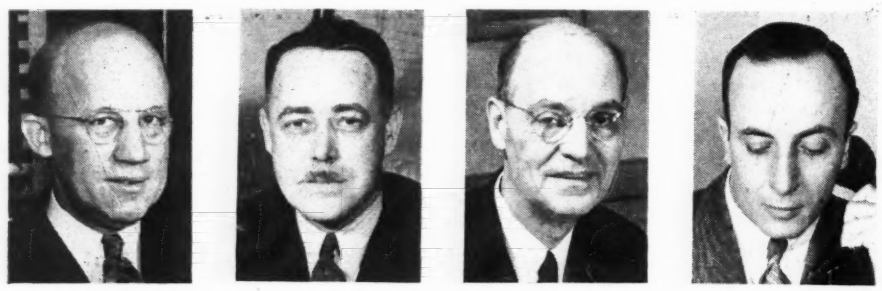
With Rheem, you'll have an A.G.A. approved floor furnace to fit any heating job . . . any customer's needs. This means more quick sales . . . more satisfied customers . . . and more profits for you.

So get this Rheem line of gas heating appliances into your store right away, and then watch your volume go up and up. Call your plumbing and heating jobber . . . TODAY. For full information, write Rheem, 570 Lexington Ave., New York 22, N. Y.

RHEEM

RHEEM . . . making houses into homes

PEOPLE



F. H. Light — J. MacKendrick — D. Hutchcraft — F. W. Laverty

. . . four new executives named by Clark Bros. Co., Inc.

• At a recent meeting of the board of directors of Clark Bros. Co., Inc., Olean, N. Y., four officers were elected. **F. H. Light** is the new vice president, treasurer and secretary. He has been with the company for 35 years, serving as purchasing agent and then as treasurer and secretary. **J. N. MacKendrick,** who joined Clark Bros. in 1929 as engine designer and became chief engineer seven years later, is now vice president in charge of engineering. The new vice president in charge of sales is **D. K. Hutchcraft.** He joined the company in 1926 as a salesman, becoming Mid-Continent sales manager and then general sales manager. **F. W. Laverty,** who entered Clark service in the foundry in 1927, is now general sales manager. He has served successively as test and development engineer, advertising manager, technical service manager, technical sales manager and assistant general sales manager.

• **George Kinsman** has been appointed rate engineer of Pacific Gas & Electric Co. at its San Francisco general office, according to an announcement by **James S. Moulton,** PG&E's executive engineer. Kinsman succeeds **Bergie B. Beckett,** who has reached retirement age but will remain with the company as special rate engineer on individual problems.

• The Fluor Corp., Ltd., has announced the appointment of **T. H. Seavey,** manager of purchases, and **J. R. Fluor,** manager of manufacturing, as directors of the company. Seavey has been with the firm since 1931, and Fluor, who was an army pilot during the war, rejoined the company last June.

• **Frank C. Smith,** president, Houston Natural Gas Corp., has announced the appointment of **John B. Cookenboo** as company controller. Cookenboo joined Houston Natural on April 1, 1946, following a number of years experience in auditing and public accounting.

• **B. P. Mulcahy,** for the past 11 years research engineer for the Citizens Gas and Coke Utility of Indianapolis, has announced the opening of his own offices in Indianapolis as engineering consultant on cupola operation and coal carbonization.

• **J. Wilson Gaw,** domestic sales manager for Seattle Gas Co., has been promoted to the position of assistant to the president, according to **N. Henry Gellert,** president. Gaw has been associated with the firm since 1931, except for a four-year leave of absence during the war. He formerly served as heating sales engineer, salesman's supervisor and assistant domestic sales manager for Seattle Gas.

• **Leon J. Willien,** well known in the industry for his consulting work and writings in the field of gas engineering, has been appointed special West Coast representative for Heath Tree Service, Inc., Wellesley, Mass. His headquarters will be in the Electric building, San Diego, Calif. In 1932 Willien was elected an honorary member of the Pacific Coast Gas Association for life in recognition of his development of a process for production of high Btu manufactured gas with existing equipment. In 1936 he received the Charles A. Monroe Award from the A.G.A. for the most outstanding recent contribution by an individual to the advancement of the gas industry.

• **Irving K. Peck,** vice president and general manager of the Columbia System and affiliated companies, Pittsburgh, Pa., has announced the advancement of **Earl D. Clutter** to the position of general superintendent of the Pittsburgh Group. Clutter will have general supervision of the production, transmission, distribution, gas engineering, civil engineering and transportation departments.

Gerald E. Wilson was appointed superintendent of distribution of the Pittsburgh Group, and **A. B. Lauderbaugh** is now chief gas engineer.

• The San Diego Gas & Electric Co. recently announced the appointment of **Miss Ruth Strong** as director of the home service department. Prior to the war, Miss Strong was assistant to the foods editor of the "Farm Journal," and later she served in England, France, Belgium and Germany as an American Red Cross recreation worker.

• **Paul H. Dow** has been appointed sales promotion manager of Bryant Heater Co., Cleveland. Dow was recently associated with the Airtemp division of Chrysler Corp., in charge of public relations and dealer relationships. He had previously been with the General Electric Co.

• **Allen T. Greiner,** president, The American Coach & Body Co., Cleveland, has announced the appointment of **Clarence G. Wood** as director of sales. Wood joined the company early in 1946 as manager of sales promotion, moving up to director of sales in October.

• **Albert K. Root,** manager of the heating accessories department of American Radiator & Standard Sanitory Corp., retired Dec. 31, after 45 years of service with American-Standard and its predecessor companies. Root will make his future home in Chicago.

• **D. A. Hulcy,** president, Lone Star Gas Co., Dallas, was elected president of the Dallas Chamber of Commerce in December and took office Jan. 1. Hulcy has been a member of the board of directors of the Dallas Chamber for a number of years.

• Effective Jan. 6, **Tom Corr,** Pecos, Texas, was transferred from Pecos to Santa Fe, N. Mex., as district manager of Southern Union Gas Co.'s northwestern New Mexico district. He replaces **O. B. Peacore** who resigned recently. Corr has been with Southern Union 15½ years.

Sloan Paxton, Pecos, succeeds Corr as district manager of the firm's west Texas district. Paxton has been associated with the company 11½ years.

T. H. Seavey — J. R. Fluor
. . . new Fluor directors

J. W. Gaw
. . . Gellert Aide

L. J. Willien
. . . with Heath

S. Paxton — Tom Corr
. . . promoted by S. U.

This booklet identifies ranges equipped with the **HARPER CENTER SIMMER BURNER**

A STOCK QUESTION being asked by more and more women when they set out to buy a new gas range is, "Has it got the Harper Center Simmer Burner?" That's the cue for your salesman to produce the booklet shown here, which is put in every Harper equipped range when it leaves the factory.

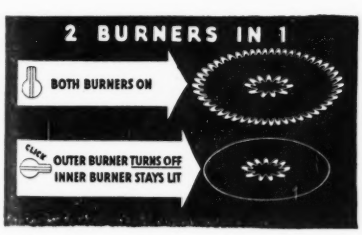
Our consumer advertising is telling prospective range buyers to look for this identifying booklet. It also points out that the famous "2 burners in 1" Center Simmer Burner saves up to 39% on gas, keeps kitchens up to 9 degrees cooler, saves hours of kitchen pot-watching weekly, and has many other advantages possessed by no other top-burner.

To trade-up your customers to a higher priced range, *demonstrate* these advantages. We offer you a special FREE booklet, "How to Sell More Gas Ranges," which contains a series of quick, convincing floor demonstrations planned to dramatize the advantages of the modern gas range. Send for copies for your salesmen. Harper-Wyman Company, 8565 Vincennes Avenue, Chicago 20, Ill.

FIVE MAGAZINES THAT INFLUENCE GAS RANGE BUYERS

Ladies' Home Journal *American Home*
Better Homes & Gardens
McCall's *Woman's Home Companion*

These leading national magazines have a combined monthly readership of more than 21,500,000 women—families in the upper income brackets—housewives who want and can *afford* to buy deluxe gas ranges. Take advantage of the Harper Center Simmer Burner advertising in these magazines . . . *demonstrate* and *talk* the advantages of Harper top burners.



The Harper Center Simmer Burner operates on the unique principle of "2 burners in 1"...a STARTING BURNER for frying and to start foods boiling, plus a small, economical COOKING BURNER to maintain the cooking...both controlled by the same handle. It is subject to finer gradations of low heats—greater control and economy—than any other top burner made.

HARPER CENTER SIMMER BURNER

"...Holds the Lines for Gas"

HARPER CENTER SIMMER

Harvey Hewitt

• **Harvey Hewitt** has been appointed vice president in charge of sales for Bethlehem Pacific Coast Steel Corp., replacing **Paul W. Cotton,** who is retiring. **T. S. Clingan** is also retiring, and his position as vice president in charge of operations of all Bethlehem steel plants and mill depots will be filled by **Wm. J. McClung.** The firm's newly created public relations department will be headed by **Willard S. Briscoe,** manager of publications. **Lionel J. Soracco,** formerly superintendent at the Los Angeles plant, will succeed Hewitt as manager of sales, and will in turn be succeeded by **J. T. Rea,** formerly in charge of new construction at that plant.

• **W. L. Thomson,** specialist in design and production and sale of gas-burning equipment, has been appointed company engineer for Coroaire Heater Corp., Cleveland. Thomson was formerly an instructor in electrical engineering at Cornell University.

• **Frederick R. Drayton,** vice president of Stokes, Packard & Smith, Inc., Philadelphia, has been elected a director of The United Gas Improvement Co. by the board of directors.

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Installing and Servicing LP-Gas Systems
Semi-Bulk Systems
Bottled Gas Systems
Gas Utility Service from Central Plants
Utility Service from a Central Plant
Appliance Installation and Servicing
Domestic Applications
Commercial Applications
Industrial Applications
Enrichment, Peak Load, and Standby Uses
Fuel for Internal Combustion Engines
N.B.F.U. Pamphlet No. 58
I.C.C. Motor Carrier Safety Regulations
Loading and Unloading from Railroad Tank Cars
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Comparison With Other Fuels

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W. Y. Hill

• Roberts & Mander Corp., Hatboro, Pa., has announced the appointment of **William Y. "Bill" Hill** as district sales representative for all of New York state except Westchester county, Long Island, and the Metropolitan New York area. Hill, who has been with the firm's sales organization since since 1937, will serve customers in the territory covered by **Walter May,** who resigned to open an appliance business in Kingston, N. Y.

• **Carl E. Lyon,** who served with Cribben and Sexton Co., Chicago, since joining the company in 1900, retired as of Dec. 31, 1946. Lyon, who started as a stockroom boy and was vice president and director of purchases at the time of his retirement, will continue his association with the company in an advisory capacity.

• **A. W. Conley,** executive vice president and general manager of Coroaire Heater Corp., Cleveland, has been elected president of the firm. He succeeds **E. R. Smead,** who becomes chairman of the board of directors. Conley had served in his former position since Coroaire's organization in 1944.

• **Fred Fox, Jr.** has been named assistant secretary and assistant treasurer of the Pennsylvania Coal Products Co., a wholly-owned subsidiary of Koppers Co., Inc., Pittsburgh. **Dr. C. F. Winans** has been appointed chemical director of the subsidiary, which is located at Petrolia, Pa.

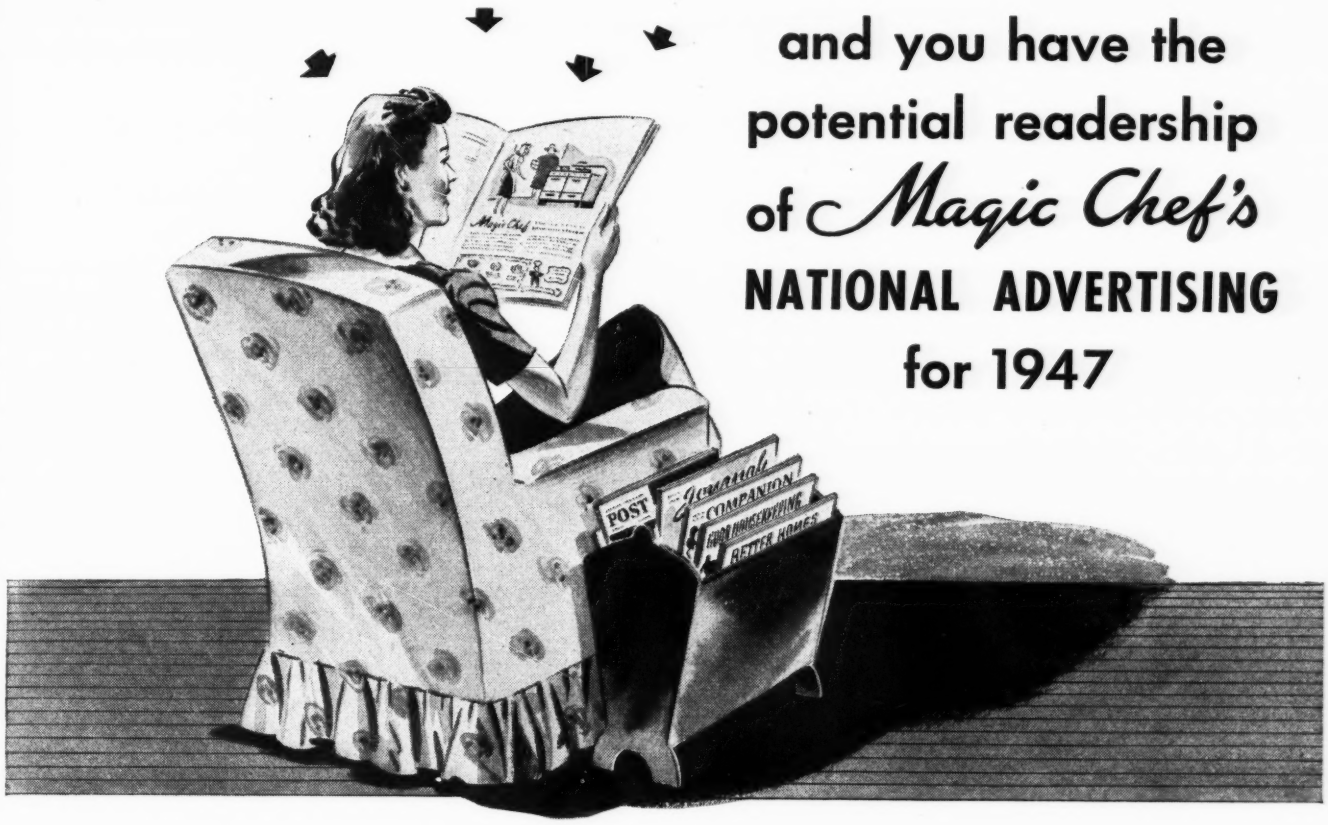
• The appointment of **James N. Crawford** and **William R. Teller** as vice presidents of Bryant Heater Co. has been announced by **Lyle C. Harvey,** president. Crawford, the former sales manager, was a member of the staff of the A.G.A. Testing Laboratory after graduation from college and became associated with Bryant in 1933. Teller, as director of engineering and development, has directed Bryant's research and development since 1944. He was previously assistant director of the A.G.A. Cleveland testing laboratories.

J. N. Crawford

W. R. Teller

• **Ernest Learock** of Domestic Thermostat Co., Los Angeles, has announced the appointment of **Howard Dyer** as Pacific Coast sales manager. Dyer has been associated with the thermostatic control business on the Pacific Coast for 11 years and is well known among appliance manufacturers.

Multiply this scene 202,600,000 times



and you have the potential readership of *Magic Chef's* NATIONAL ADVERTISING for 1947

AFTER 27 YEARS OF CONTINUOUS ADVERTISING LIKE THIS

is it any wonder that

More women cook on than on any other range

More women plan to buy than any other gas range

CASH IN ON THIS PROGRAM

ASK YOUR *Magic Chef* REPRESENTATIVE FOR DETAILS

AMERICAN STOVE COMPANY • New York • Atlanta • Philadelphia • Chicago • Cleveland • St. Louis • San Francisco

PEOPLE

• **H. E. Beane** has been appointed general sales manager of The Bristol Co., Waterbury, Conn. Beane has been associated with the firm since 1920. From 1925 to 1935 he was district manager of various branch offices, becoming field sales manager in 1936 and sales manager in 1943.

• **George P. Hough** has replaced **Don T. Allen** as executive administrator of A. O. Smith Corp.'s Chicago district. Hough has been with the company since 1939. He graduated from the law school of the University of Minnesota, was admitted to the bar in Minnesota, and then went into sales work.

• **Charles L. Orr** has resigned as Midcontinent secretary and attorney for the Independent Natural Gas Association of America at Oklahoma City. He will resume the practice of law in that city. For several years Orr was secretary of the Interstate Oil Compact Commission, resigning to go with the INGAA.

• **William C. Gaffers,** partner in the firm of Gaffers and Sattler, Los Angeles, died from a heart attack on Dec. 29. Gaffers settled in Los Angeles 38 years ago and had been prominent in the gas industry in Southern California for many years. The firm of Gaffers and Sattler, range manufacturers, was founded in 1925.

A GOOD QUESTION AND A CORRECT ANSWER

QUESTION

How can I stop Electrolytic Corrosion?

ANSWER

Use HILL, HUBBELL Dielectric PIPE PROTECTION

1 CLEANED PIPE
2 PRIMER
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HILL, HUBBELL dielectric steel pipe protection is successful against electrolytic and all other kinds of soil corrosion.

As pioneers in the field of FACTORY PIPE PROCESSING, our PRECISION applications of our enamels and wrappings are the results of soil research engineering.

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Unit Operation Sought For Oklahoma Gas Field

With the objective of producing 20 million barrels of additional oil from the Medrano sand of the West Cement field of Caddo county, Okla., an application recently was prepared for filing with the Oklahoma Corporation Commission seeking unit operation of the field.

The proceeding is authorized under House Bill 339 passed by the 1945 Oklahoma legislature. Under the program, the entire field of 3280 acres would be operated as a single unit lease.

Up to this time there has been recovered from the field, 6.7 million bbls. of oil and more than 67 billion cu. ft. of gas. Engineers hope for a 60 to 65% recovery of all the oil and gas in the reservoir under unit operation.

Budget Set For PCGA Cooperative Advertising

Companies participating in PCGA's cooperative advertising program have approved a budget of $57,428 for 1947, the 19th continuous year of the effort. In addition to the cost of advertising space and the preparation of advertisements, this budget includes provisions for publicity in the form of illustrated feature articles on gas and gas appliances to appear in consumer trade journals. The committee in charge of the 1947 program is headed by Chairman J. S. Spaulding of the Southern California Gas Co., Los Angeles.

Dresser Industries Issues Fourth Quarter Report

Net profit of Dresser Industries, Inc., Cleveland, Ohio, for the company's fiscal year ended Oct. 31, 1946, was $1,037,235, as compared to $1,921,628 for 1945, according to the company's fourth quarter interim report to shareholders, issued Dec. 13.

Sales for 1946 totaled $54,783,188, as compared to $80,544,911 for 1945. The company's backlog as of Oct. 31 was $66,894,000, and at the beginning of its fiscal year it was $21,450,000.

Manufacturer Changes Name to Connelly, Inc.

The Connelly Iron Sponge & Governor Co., Chicago, changed its name to Connelly, Inc., effective Jan. 1. The firm will continue the production and sale of iron sponge. Manufacturing rights of Connelly back pressure valves, governors and manometers have been acquired by the Norwalk Valve Co., South Norwalk, Conn. Connelly plans no management or policy change.

"Elbow Bending" Speeds New Gas Service

A number of Portland Gas and Coke Co.'s employees recently were paid for "elbow bending," due to a shortage of ¾-in. pipe elbows used to run gas service to new homes. By sawing two ordinary pipe couplings at 45° angles and welding the longer pieces to form 90° elbows, the 200 required daily for new service can be supplied.

Mobile Gas Service To Refund 16% of Earnings

The Mobile (Ala.) Gas Service Corp. will refund 16% of its 1946 earnings to some 20,000 customers, according to an announcement by the Alabama Public Service Commission. Commission Chairman Gordon Persons stated, after a conference with company officials, that approximately $176,000 in "excess" income must be refunded to consumers within 60 days.

Refunds will be made to all customers served under the "general service" and commercial heating schedules. Each rebate will amount to 16% of the total bills rendered between Jan. 1 and Dec. 31, 1946.

Model Changes Delayed Until Summer By Tappan

A. B. Ritzenthaler, vice president in charge of sales, Tappan Stove Co., has announced postponement of any major design changes in Tappan gas ranges until the summer of 1947. It was pointed out that at present, unlike normal years when sales must be stimulated by model changes, it is production rather than sales which must be stimulated.

"Under this program," he said, "Tappan dealers are assured of a continued maximum volume of deliveries, avoid the complications of price changes resulting from new models, and are able to formulate their own plans on a sound basis."

Lake Arthur, La., To Vote On Municipal Gas System

Property owners in Lake Arthur, La., will go to the polls on Tuesday, Feb. 25, to vote on a $104,000 bond issue for the construction and maintenance of a municipal natural gas system, the bonds to run over a 20-year period and interest not to exceed 4%, payable semi-annually.

The proposal also provides the right to build gas transmission lines, pipe line mains, laterals and service connections, regulator stations, meters, and all other equipment needed in the installation and maintenance of the municipal gas plant.

Utility's Name Changed

Change of name of the B. C. Electric Power and Gas Co., Ltd., has now been approved by the British Columbia government. The change is in line with the refunding program which was recently approved by the government, and in the future the B. C. Electric Power and Gas Co., Ltd., which is a subsidiary of the B. C. Electric Railway Co., Ltd., will be known as the B. C. Electric Co., Ltd.

Under the reorganization plan, the new company will handle all matters pertaining to electric power and gas while the B. C. Electric Railway Co., the sister firm, will continue in its present capacity of directing the transportation end of the business.

Service Uninterrupted Despite Line Break

An explosion heard seven miles away, at Corsicana, Texas, recently wrecked 30 ft. of 20-in. Lone Star Gas Co. pipe line 1½ miles northwest of Trinidad. The explosion was followed by a fire which was quickly extinguished, and the break was repaired the same day. Gas service to Dallas was uninterrupted, as a companion 18-in. line was not damaged. Cause of the blast has not been determined.

Georgia Gas Rates Cut

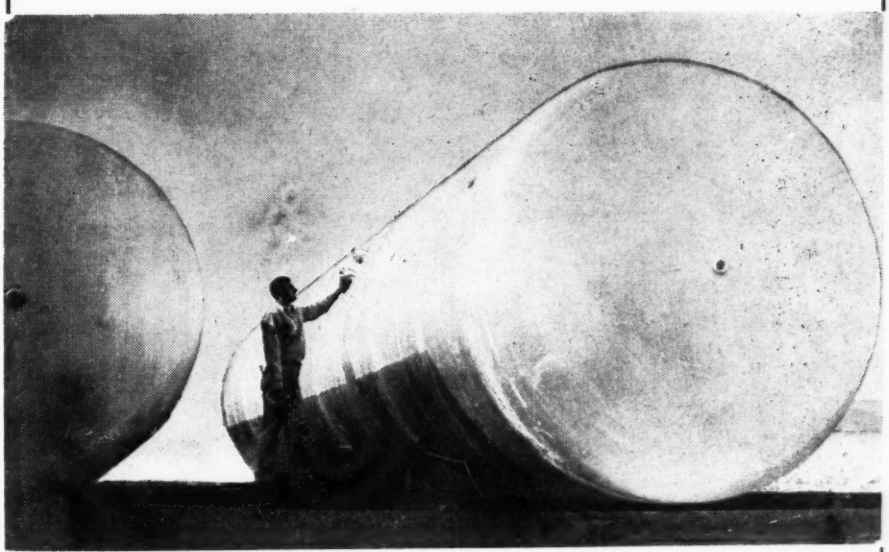
An order issued early last month by the Georgia Public Service Commission will save Georgians $734,608 in natural gas rates, according to Chairman Walter McDonald. The order, which named the Atlanta Gas Light Co., effected a rate reduction of 20% for users in 20 cities.

Southern California Gas Offers Union Pay Raise

In a letter to the unions representing its employees, Southern California Gas Co. last month offered to continue the present contract, which expires Feb. 28, 1947, until Feb. 29, 1948, subject to new proposed wage rates and vacation allowance of three weeks after 15 years. At the same time, the company put into effect pay raises for employees not represented by the unions, effective Jan. 1, 1947.

The offer to the unions was to be left open until Jan. 31 and would be retroactive to Jan. 1.

Ready For Immediate Shipment



20,840 Water Gallon—200 P.S.I. Bulk Storage Tanks for Propane. 9 ft. Heads by 47 ft. long—Weight 52,000 lbs. Made from 70,000 lb. Hi-Tensil Steel. Semi-Ellipsoidal Heads.

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Finest quality material, skilled master craftsmen and modern precision designed equipment assures Delta customers of the finest L.P. gas equipment for storage or transport.

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Enamel to Protect Steel From Heat Announced

An enamel designed to protect metal sheets exposed to the hot blast of exhaust gases, developed during the war for military uses, will now be made available commercially, according to the National Bureau of Standards.

Although of a thickness of only two to three thousandths of an inch, the new coating will protect surfaces for long periods of exposure at 1250° F without chipping or cracking.

Its special ingredient, a certain grade of calcined aluminum oxide, is combined with a frit used in ground coats for conventional enameling. As applied to military uses, it presented a dull finish; but some of the heat resistant properties may be retained in formulas that produce glossy enamels, it is reported.

Organizer of Short Course Wins Engineer Society Post

W. H. Carson, dean of the school of engineering, University of Oklahoma, Norman, was named second vice president of the Oklahoma Society of Professional Engineers, at a meeting in Oklahoma City, Jan. 11.

Dean Carson is well known to the natural gas industry of the southwest for his activities in arranging for the annual sessions of the Southwestern Gas Measurement Short Course, sponsored by the college of engineering which he heads.

L. L. Dresser, of Tulsa, construction engineer in the oil and gas industries, was elected president. He succeeds C. S. Worley, chief engineer and purchasing agent for the Consolidated Gas Utilities Corp., Oklahoma City. Col. William E. Bleakley, Oklahoma City, was named executive secretary of the society.

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Beta Fountain Pens hold two to four times the ink of ordinary chart inking pens. Regardless of the line thickness Beta Pens produce a smooth unbroken and uniform line. Pens shown are approximately actual size and can be arranged to reduce time interval between static and differential lines to only a few minutes. Beta Pens are especially suitable for seven day records. Price $1.00 (lower prices in quantities).
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PCGA Reserves Space at Western Metal Congress

Some 400 sq. ft. of floor space has been reserved by the Pacific Coast Gas Association for the 5th Western Metal Congress and Exposition, sponsored by the American Society for Metals, to be held in the Oakland auditorium, Oakland, Calif., March 22-27. PCGA will share this space with manufacturers of gas-using metal-heating equipment. More than 40,000 metals scientists, engineers and executives are expected to attend, according to W. H. Eisenman, managing director of the Exposition, and national secretary of the American Society for Metals.

PCGA is one of the sponsoring organizations for the Congress and will take part in the technical sessions as well as in the exhibits.

A.G.A. Publishes Approval Requirements Revisions

The A.G.A. Approval Requirements Committee has published and distributed to the industry recommended revisions to American Standard approval requirements for gas space heaters, domestic ranges, and portable baking and roasting ovens, as well as proposed new standards for combination ranges. The texts have been published for review and criticism, and following revision as a result of comments received, they will probably become effective Jan. 1, 1948.

Stok-A-Fire Co. Becomes Automatic Firing Corp.

Hugo Wurdack, president, Stok-A-Fire Co., Inc., 6504 Olive Blvd., St. Louis, Mo., has announced that the firm's name has been changed to the Automatic Firing Corp. During 1947 the company's operations will be expanded to include gas furnaces, oil conversion burners and furnaces, and conversion burners for liquid petroleum.

Cheyenne Gas Supply To Come From Kansas

The Colorado-Wyoming Gas. Co. is planning to build a 105-mile pipe line from Denver to Cheyenne this spring, at a cost of approximately $1.5 million. Construction is scheduled to begin April 1 and will require an estimated eight months. The new line will carry a pressure of 1000 psi.

H. H. Lenhart, general manager of Cheyenne Light, Fuel & Power Co., stated that gas will be brought from the Hugoton field in Kansas, since a survey of Wyoming gas fields indicated only a 15 to 17-year supply. The new line will run from a connection point with an existing line east of Denver to a line southeast of Cheyenne. Lenhart said his company will spend about $305,000 for necessary interconnections. A compressor station will be built near the southern end of the new line.

It is revealed that gas consumers in Cheyenne increased 30% during 1946. Completion of the new line will triple the amount of gas available to the city.

Industrial and Commercial Schools to Convene in May

Several hundred gas men are expected to attend each of two schools which will be sponsored by the Industrial and Commercial Gas Section of the A.G.A. as the result of a survey conducted last summer to secure opinions as to the value of such schools.

Each school will offer a one-week course to train men in the latest methods and equipment for gas utilization. An outline of the courses, and registration blanks and other pertinent information will be sent to member companies and to members of the Industrial and Commercial Gas Section during January.

The Hotel Seneca, Columbus, Ohio, is the place selected for the Industrial Gas School, which will be held May 5-9. The Commercial Gas School will meet May 12-16 in the auditorium of the Washington Gas Light Co., Washington, D. C.

ISO Organized For World Standardization

P. G. Agnew, vice president and secretary of the American Standards Association, announced recently that the United States was the first country to ratify the convention setting up the 25-nation ISO — International Organization for Standardization. The action was taken at a meeting of the ASA board of directors.

The ISO office is to be set up at Geneva, Switzerland. Interest has been expressed in a list of 64 projects now accepted for ISO action. In each case technical leadership will be taken by a country in which the particular industry is well developed.

Corrosion Engineers Plan Four-Day Meeting in April

Dr. Norman Hackerman, professor in the School of Chemistry, University of Texas, will address the members of the National Association of Corrosion Engineers when they meet in Chicago, April 7-10. Dr. Hackerman's topic will be "Mechanism of Inhibitor Action." He will speak before the General Industry Symposium, one of the five technical sessions to be held during the four-day meeting.

Co-speakers on the symposium will be J. T. Gow, Batelle Memorial Institute; B. G. Crane, Ethyl Corp. research staff; and N. E. Berry, director of research, Servel.

An exhibition featuring the latest developments in material, services, equipment and devices used to eliminate corrosion loss will be open daily during the convention and will be open to the public.

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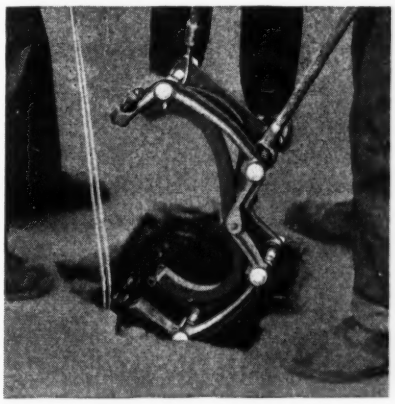
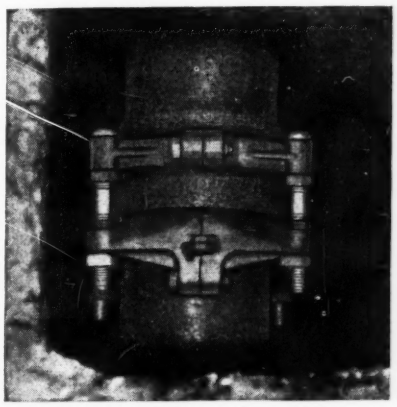
Solves Your Joint Repair Problems

- QUICK
- EASY
- PERMANENT

6 inch NORMAC clamp being lowered into hole for installation



6 inch NORMAC clamp in service after installation



Installed in pavement openings 1' x 1'. Available in all standard sizes from 3" to 12". A simple set of tools cleans the joint, installs the clamp . . . often in only a quarter of an hour. SAVES TIME. SAVES MONEY and the repair is permanent. Designed for all conditions particularly where pavement repair costs are prohibitive. Write for literature illustrating this simple solution to one of the Gas Industries most trying problems and ask for our catalog describing our complete line of

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SLEEVES . . . COMPRESSION-END COCKS . . . COMPRESSION-END METER BARS

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39 SOUTH LA SALLE ST. • CHICAGO 3, ILL.
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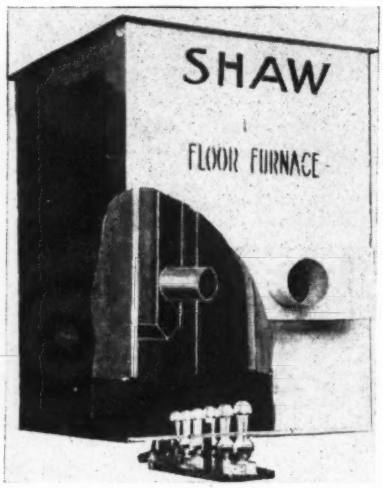

AGA
Approved

CONSTRUCTION

16 gauge pressed steel 24" x 24" grill, welded corners, baked-on brown finish. Heavy 26 gauge galvanized steel outside shell with double lip on top. 24 gauge removable inside shell. Pittsburgh seams—practically water tight. Approximate weight 155 lbs.

BURNER and COMBUSTION CHAMBER

Economical air cooled burner—16 gauge black steel sheet combustion chamber, electrically welded. Both positively guaranteed for life of the furnace, replaceable by SHAW BURNER CO., INC., to the dealer.

CONTROLS

Furnished either manually operated or with Minneapolis-Honeywell Automatic Controls—with 100% cutoff on main burner and pilot. Also supplied with White-Rogers Sampsel and General Controls. Either Natural Gas or L.P.G.

"To Shawburnize is to Economize"

Manufactured by

SHAW BURNER COMPANY, INC.

P. O. BOX 203 —— PHONE 2274

Arkansas City, Kansas

Testing Requirements Proposed by A.G.A. Groups

Four groups of the A.G.A. Testing Laboratories recently adopted a number of proposed requirements and submitted them for comment and approval.

The domestic range committee considered revised wall and floor temperature requirements and approved them for final action. It also adopted proposed requirements for dual oven type combination ranges, as well as suggested provisions for venting gas ranges. Consideration was given to single point ignition and suggested changes adopted.

Use of aluminum jackets was discussed by the water heater group, which decided they can be accepted if all tests are met and proper protection provided. Other subjects discussed included accessibility for cleaning copper coils of circulating tank heaters and new requirements covering automatic pilots.

The bake oven committee adopted tests for high altitude operation but recommended further study of the tests to make them more indicative of actual field conditions.

The space heater group considered new designs submitted for approval.

PCGA's "Miracle Flame" Makes Debut in Oklahoma

"The Miracle Flame," a 20-minute sound and color film dramatizing California's natural gas industry, was given its first Mid-Continent showing at the Oklahoma City Engineers club luncheon meeting, Jan. 6.

Recently completed by the Pacific Coast Gas Association, the picture portrays the origin of natural gas, its accidental discovery in ancient China, and modern methods of drilling, piping, storing, regulating and distributing it. Utilization in modern homes and industries also is exhibited.

The film was produced by a special committee of the association which worked on it for nearly a year. The story is related simply, since the committee made a special effort to avoid slowing down the picture with charts, graphs, technical discussion or overcommercialism.

Prints are being sold to member companies of PCGA at the actual cost —$125 including reel and can, sales tax and express charges. A price of $175 a print has been established for non-members.

Order from PCGA at 447 Sutter St., San Francisco 8, Calif., allowing two weeks for delivery.

CURRENT READING

Application of Pressure Welding to Pipe Lines — E. P. Jones. "Petroleum World," Oct., 1946, pp. 55-59. This paper covers the development of the pressure welding process as applied to the joining of overland pipe. Briefly, the pressure welding process consists in butting together, under a predetermined pressure, two members to be welded, heating their juncture with oxy-acetylene flames to a temperature within the range of 2100-2500°F, and upsetting to a predetermined degree. The process is generally mechanized so as to be semi-automatic in operation. As such, it has been used in a widely diversified range of applications in industry, including railroad rails, oil well tool joints, propane tanks, aircraft landing gear, etc. It is the purpose of this paper to present the history and development of equipment, and the technique for adapting this oxy-acetylene process to pipe line right-of-way conditions.

Meeting Increased Demand for Natural Gas with Present Pipe Line Facilities —E. Buddrus. "Oil and Gas Journal," Sept. 21, 1946, pp. 180, 181. In combination with the effect of the rising prices of competitive fuels as opposed to the fixed prices of natural gas sold by a regulated industry, there have been set loose tremendous forces which can only spell increased demands for gas fuel well over and above those which would have been incurred in the normal course of events. How to meet these demands with the facilities at hand, is the natural gas industry's greatest immediate problem. Some few "palliatives" are treated in this article, both as regards the gas stream itself and the facilities through which this stream passes.

A Critical Survey of Controlled Atmospheres—Edward J. Funk, Jr., and Davidlee Von Ludwig. "The Iron Age," three parts: Sept. 19, p. 74; Sept. 26, p. 42; Oct. 3, p. 50. Controlled atmospheres for various heat treatments of ferrous and non-ferrous metals and alloys are evaluated from the standpoints of economics and metallurgical suitability. The authors suggest a code system whereby the base atmospheres and their modifications can be readily and systematically identified. They propose a theory, attempting to set forth the probable mechanics of soot formation, based on isotopic modifications of carbon.

The Agents, Basic Causes, and Control and Prevention of Corrosion — F. A. Prange. "Oil and Gas Journal," Sept. 7, 1946, pp. 88, 91, 93. In this article the author has approached the subject from a viewpoint of general theory, giving the reasons for different types of corrosion and the various methods of prevention and control.

Maintenance Procedure in Field for Internal-Combustion Engines—L. Billington. "Petroleum Engineer," Sept., 1946,, pp. 74, 77, 80. The procedure as employed by Union Oil Co. of California is described.

The Effects and Corrections of Gas Pulsation Problems — F. M. Stephens. "California Oil World," 2nd Sept. issue, 1946, pp. 3, etc.

ARE YOU

STUCK FOR PARTS?

ARE YOU undersupplied on some, and oversupplied on others... with the resulting heavy inventory? Sales low? Unit cost rising? Worker efficiency low because of lack of parts to assemble your product?

ARE YOUR parts suppliers unable or unwilling to make short runs of a few hundred or a few thousand pieces?

YOU DON'T NEED TO BE STYMIED by lack of castings, forgings and particular shapes and materials. Why not try a new proven source?

MASTERS' engineers, methods, machines and men are versatile to the Nth degree. Thousands of top quality items have been produced by us for hundreds of leading manufacturers.

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LET US FIGURE ON YOUR REQUIREMENTS FOR DURAL, BRASS, STEEL OR STAINLESS STEEL PARTS

CURRENT READING

Heat and Corrosion Resistant High Temperature Alloys. "Product Engineering," Sept., 1946, pp. 151, etc. Properties of various alloys are given. The information represents the results of tests conducted by Alleghany Ludlum Laboratories. It also includes data obtained by the University of Michigan, Battelle Memorial Institute and the General Electric and Westinghouse laboratories.

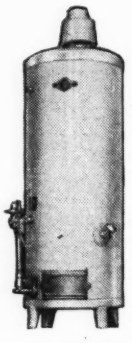
Piston Lubrication Phenomena in a Motored Glass Cylinder Engine—S. J. Beaubien and A. G. Cattaneo. "S.A.E. Journal," Oct., 1946, pp. 60-67. How and why oil is consumed in the combustion process has been perplexing engineers since the inception of internal combustion engines. Recently conducted tests using a motored glass cylinder engine are described in this article. The composite picture of oil and piston ring movement obtained in these tests reveals a visual picture of what actually happens during cylinder lubrication and provides concrete instead of hypothetical data. One important discovery is that a large part of the oil consumed by the engine is exhausted as the resultant forces in play during the exhaust stroke permit the top piston ring to move freely in its groove.

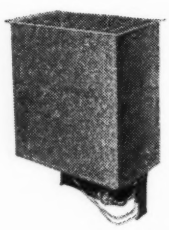
Physical Constants of Low Boiling Hydrocarbons and Miscellaneous Compounds—W. S. Hanna and R. Matteson. "California Oil World," 2nd Sept. issue, 1946, pp. 13, etc. Tables of the physical constants are given, the source of each value being listed. A CNGA paper.

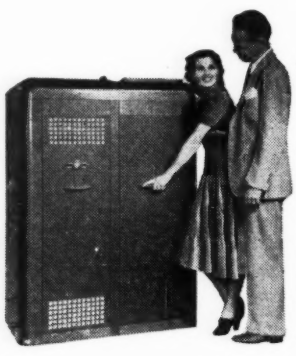
Again...Smartly Styled, Improved, Guaranteed

SECURITY
AUTOMATIC
Gas-Fired Products

For more than 40 years SECURITY has been famous for dependable performance, lasting quality and outstanding appearance. Now, new SECURITY models are better than ever before! Laboratory research and advanced engineering brings improvements . . . longer life, easier installation, greater efficiency, new and better materials, smarter designs . . . that mean sales. Make certain your customers will be satisfied customers. Look to SECURITY for leadership in automatic gas-fired products. Pictured, the SECURITY Hot Water Heater, Floor Furnace, and Winter Air Conditioner.







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SECURITY
GAS FIRED SGP PRODUCTS
The "LONG-LIFE" LINE

How to Use Handicapped Workers—Arthur T. Jacobs. This book is designed to aid employers, personnel officials, foremen and supervisors to make successful use of the physical, mental and temperamental abilities of all employees. As the author contends, many workers are "handicapped" only in the sense that they are in the wrong jobs, while others have more or less obvious physical deficiencies.

One important section is an 80-page appendix which summarizes various physical and mental handicaps. For each type a description is given together with an evaluation of its effect on working ability, things to note in placement interviews with persons so handicapped, and helpful medical reports. An insert chart, 13 x 15 in., summarizes the physical demands for 105 occupations covered by formal apprenticeship programs.

Available from The National Foremen's Institute, Inc., Deep River, Conn. 181 pp. Price $3.50.

Plant Additions Increase Butane Recovery—Frank H. Love. Reprinted by Clark Bros. Co., Inc., Olean, N. Y., from the April 1946 issue of "The Petroleum Engineer". This reprint brings up to date a discussion of Continental Oil Co.'s multiple plant processing project in the KMA field, Wichita county, Texas. Continental's plant, which was erected eight years ago, has undergone an expansion of such significance that the reprint was published recently to complete the story.

Economical Alignments for Pipe Lines—P. Bryan. "Petroleum Engineer," Oct., 1946, pp. 212, 214. Whenever pipe line connections are to be made between three points, as illustrated in a figure, there will usually be a wastage of from 5 to 9% of the investment through a thoughtless choice of alignment. Equations are developed for minimizing this loss.

1946 Trends in Pipe Line Practices—W. G. Heltzel. "Oil and Gas Journal," Sept. 21, 1946, pp. 182, etc. In this article the author discusses the future growth of product-distribution lines, possibilities of pipe lines for transmitting coal gas, problems of pipe lines serving new oil fields, and advantages of larger diameter pipe lines.

How the Cooling Tower Does Its Job—J. Lichtenstein. "Power," Oct., 1946, pp. 105, etc. To help a purchaser understand what service may be expected from a cooling tower, the author explains the functions of its various mechanical elements.

Evaluation of Absorber Operating Efficiency—E. G. Ragatz and J. A. Richardson. "California Oil World," 2nd Oct. issue, 1946, pp. 29, etc. While it has been of invaluable aid to the industry, the conventional theoretical absorption tray analysis of Kremser and Brown presents a serious weakness in that its basic "tray efficiency" factor shifts markedly in value with percentage of key component recovered. Furthermore, the degree of this shifting varies widely for different columns, and for different conditions of operation of a given column. Since it is rarely possible to operate a commercial column under an exact preset condition of feed quality, column loading, and key component recovery, this shifting of the tray efficiency limits the usefulness of the conventional analysis for accurate specification defini-

tion, or for precise column operation comparison. The authors have recently analyzed the operating characteristics of some 40 commercial columns ranging in pressure from 30-lb. to 1800-lb. gauge. From this study they have developed a technique for evaluating absorber performance which utilizes an experimentally derived absorption factor chart in place of the classical Brown chart, and which gives promise of fully correcting the limitations of the conventional theoretical method.

Practical Considerations in Evaluating Pressure Maintenance — L. L. Gray. "California Oil World," 1st Oct. issue, 1946, pp. 9, 11. Conclusions drawn from discussions with various individuals favoring and opposing pressure maintenance are as follows: (1) Avoid so far as possible the cooperative project as distinguished from the unitized project; (2) Require that all facilities, gas and gasoline plants be owned by the unit; (3) Do not force a questionable project through; (4) The unitization contract terms on voting and organization should be particularly generous to the minority operators; (5) The unit operator should have an adequate staff with the proper attitude to carry out the rather delicate control essential to attain maximum benefit; (6) Lease stipulations should include a royalty pooling clause.

New Alloys for Severe Corrosion Services—M. G. Fontana. "Chemical Engineering," Oct., 1946, pp. 114-115. Chemical engineers can add two new names to their list of corrosion-resistant alloys. After three years in the incubator, Chlorimet 2, a Ni-Mo alloy, and Chlorimet 3, a Ni-Mo-Cr alloy, were put on the market by their creator, the Duriron Co. They are produced only as castings and are expected to find their biggest use as pumps and valves. Both are machineable, and one, Chlorimet 2, can readily be hardened by heat treatment.

Friction Charts for Gases Including Correction for Temperature, Viscosity and Pipe Roughness—R. D. Madison and W. R. Elliot. "Heating, Piping and Air Conditioning," Oct., 1946, pp. 107-112. The solution of problems involving fluid flow and friction will be simplified by means of the charts presented in this paper. Methods of making corrections for temperature, viscosity and pipe roughness are explained and the use of the charts is illustrated by solution of typical problems.

Oil For Victory—By the Editors of "Look." Published by McGraw-Hill Book Co., Inc., New York. The story of petroleum in war and peace, prepared with the cooperation of the Petroleum Administration for War, the Petroleum Industry War Council and the American Petroleum Institute. Fully illustrated with excellent photographs, as well as drawings and charts. Price $3.50.

Protection of Two 8-In. Coated Pipe Lines with Magnesium—A. Smith, Jr., "Oil and Gas Journal," Sept. 21, 1946, pp. 195, etc. Method of protection of pipe lines against corrosion with magnesium anodes is described.

Cycling Operations — H. H. Kaveler. "Oil Weekly," Sept. 2, 1946, pp. 33-36. Cycling operations are becoming increasingly important; principles are outlined in this article.

THE MASTER OF FLAME
ANSUL
REG. U.S. PAT. OFF.
FIRE EXTINGUISHING EQUIPMENT
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DRY CHEMICAL
FIRE EXTINGUISHERS

WRITE TODAY FOR CHARTS SHOWING COMPARATIVE RATINGS ON FLAMMABLE LIQUID FIRES AS DETERMINED BY NATIONALLY RECOGNIZED APPROVAL AGENCY.

Highest Ratings for Speed and Effectiveness

WITH THE NEW ANSUL-DUGAS DRY CHEMICAL FIRE EXTINGUISHER

Speedy-fast action is the first essential in preventing major fire damage. The NEW Ansul-Dugas Extinguishers, for Class B and C fires have the highest ratings for SPEED and EFFECTIVENESS, pound for pound, as determined by impartial authority. These highest ratings mean positive put-out of your incipient fires by ANY of your employees.

STOP FASTER!
with Ansul-Dugas Dry Chemical Extinguisher

FEATURES OF THE NEW ANSUL-DUGAS EXTINGUISHER

- Greatly increased fire-killing power.
- Expert extinguishing by inexperienced operators.
- Simplified—faster operation.
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- Greater fire-fighting effectiveness, pound for pound, dollar for dollar.
- Longer range stream and greater shielding of heat from operator.
- Increased fire-fighting capacity without increased weight.
- Engineered to resist corrosion.

ANSUL CHEMICAL COMPANY
FIRE EXTINGUISHER DIVISION, MARINETTE, WISCONSIN

Welding Propane Gas Tanks—F. M. Burt. "Welding Engineer," Oct., 1946, pp. 39-41. The procedures involved in welding these tanks are described and illustrated.

Gas Turbines—L. N. Rowley and B. G. A. Skrotzki. "Power," Oct., 1946, pp. 79-98. This article summarizes present and proposed cycles, component parts of machines built and planned, performance data and applications.

Economics of Gas Lines—"Oil and Gas Journal," Sept. 21, 1946, pp. 176, 177. Engineering has solved physical problems of distance. Supply and demand assure further expansion.

National Advertisements Push Gas Appliances

A.G.A.'s January-February advertisement features the latest New Freedom Gas Kitchen—the "Four Seasons" kitchen—and places special emphasis on the gas refrigerator. This ties in with Servel's current use of double pages in a number of periodicals.

The shift to appliance-selling copy in national ads will continue in the A.G.A. series, which next will highlight the automatic gas range built to "CP" standards. An ultra-modern gas kitchen will be pictured, with a close-up of the gas range at the bottom of the page. Copy will be short and factual—designed to sell.

Panhandle Expansion Will Increase Distribution

Division Manager Thomas J. Kelly, of the Northern Indiana Public Service Corp., has stated that his company's total allocation of natural gas is now 14,899 Mcf daily. This includes 1.5 MMcf daily to be received from Panhandle Eastern Pipe Line Co. as a result of recent FPC hearings in Chicago.

Panhandle's expansion plans include construction of a new line from Texas to Indiana, Michigan and Illinois, and the installation of compressor engines at stations along all its lines. Completion of the project will add 4465 miles of new gas lines and other facilities in 18 states.

The increased distribution will mean an additional 1 MMcf daily for 71 cities and towns in Northern Indiana Public Service territory. The company also is planning to install four 30,000-gal. propane gas tanks in Fort Wayne, Ind., as a reserve for peak days. Estimated cost is $60,000.

Supreme Court Refuses To Review Interstate Case

The U. S. Supreme Court has refused to review the decision of the New Orleans Fifth Circuit Court of Appeals, which upheld an FPC order reducing rates charged by Interstate Natural Gas Co. Since Interstate Natural is a producer and gatherer of gas in the Monroe field, Louisiana, and sells the gas to other pipe line companies for transmission to other states, this decision is viewed by the industry as giving the Federal Power Commission authority to regulate production and gathering of natural gas.

The courts construed the operations of Interstate Natural as being subject to FPC jurisdiction, in spite of the fact that all production and deliveries by the company are within the state of Louisiana, because its pipe line crosses the state border for a few miles and then turns back in.

Future of Industrial Gas Explained in Booklet

"The Future of Natural Gas for Industry in Southern California" is a booklet recently published by Southern California Gas Co., Los Angeles. It is an attempt to explain why many industries have had gas shut-offs for days or weeks, although California has long been credited with a good supply of oil and gas.

The company points out that its basic duty is to supply gas to domestic, commercial and essential industrial customers, which on peak days require the entire available supply. An increase in demands for "firm" service and a reduction in the amount of gas available to use from California sources are cited as reasons for recent cutbacks.

Hydrocol Contracts Let

G. G. Gabrielson, president of Carthage Hydrocol, Inc., has stated that a contract for designing and building a $15 million plant for the firm has been awarded to Hydrocarbon Research, Inc., of New York City. A contract for the actual construction has been signed with the Arthur G. McGee Co., Cleveland. The plant will extract gasoline from natural gas. (See "Gasoline From Natural Gas" by P. C. Keith, GAS, June, 1946, p. 21.)

SOMETHING BIG IS HAPPENING IN AMERICA

"We would be interested in preliminary estimates on propane and butane plants to produce a substitute for the present 1,000 Btu natural gas distributed in several of our cities" (mixed natural and carbureted water gas in area of 38,000 population) ..... Southern Indiana

"We are building two propane-air mixing plants. It is possible . . . we might increase the capacity of our plants" (manufactured and mixed natural gas in area of 182,000 population) ..... Northern Indiana

"We are very much interested in converting our water gas plants to a propane-air plant" (serving an area of 23,000 population) ..... Alabama

"The additional demands in this area make it necessary for us to increase the capacity of our plant" (carbureted water gas in city of 325,000 population) ..... New York

"We are interested in setting up one plant to mix our present supply (LP-Gas) with manufactured gas to increase the supply we now have" (serving group of Ohio Valley communities) ..... Ohio

We present at the left excerpts from letters we are receiving from gas utility operators in almost every section of the country. All are seeking information, services, equipment, etc., for the construction of increased plant capacity, in the form either of . . . .

CONVERSION TO LP-GAS

LP-Gas Peak Load Plants, or Enrichment of Present Product

To put it mildly, gas utilities and manufacturers using heat in industrial processes are determined to be prepared, and that before too long, with a dependable suppply of flexible gas fuel, rather than remain at the mercy of any one type of fuel supply.

To express it plainly, AMERICA'S "INNARDS" ARE BEGINNING TO ROLL.

Quite naturally, Southern Gas & Equipment Company, a pioneer in the Liquefied Petroleum Gas equipment design and manufacturing business, feels it is fortunately prepared to aid many puzzled gas utility operators and manufacturers, who depend on gas for fuel with

PLANNING, DESIGNING, CONSTRUCTION KNOW-HOW

We have combined in this service some of the best talent in the LP-Gas, Natural Gasoline, Petroleum Refining, and Chemical Industry engineering and construction fields. We invite consideration of your problems, without obligation on your part. If we cannot help you we will not hurt you. If we can help you, both of us profit.

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Atlanta, Ga.

SOUTHERN GAS & EQUIPMENT CO. of TEXAS—Houston

GAS PRODUCTION

• A new gas field on the Oklahoma-Kansas state line was opened in Beaver county, Oklahoma, north of Lorena, by H. L. Hunt, Dallas independent operator, who holds leases on 30,000 acres in the area. Reports on production of No. 1 well vary from 8 to 50 MMcf of gas and 30 barrels per day of distillate in each report. Production was at 6630 ft. The operator is to drill two more wells on the acreage.

• A survey of oil operators in Mississippi shows that at the start of 1947, 85 oil and gas tests were under way in 21 of the state's 82 counties. Twenty of the tests were wildcat wells in 15 counties, while 65 were in 13 of the state's proven fields. New fields discovered in 1946 were Kings in Warren county and La Grange, Pendleton and Pine Ridge in Adams county.

• A new showing of oil and gas has been found in a wildcat test in Morgan county, Alabama, according to Dr. Walter B. Jones, state oil and gas supervisor. C. P. Mayhall on his No. 1 Bramlett, south of Decatur, said the new showing of oil and gas was at 749-753 ft. A previous showing had been reported at 785 ft. in lime, below which Mayhall is now drilling.

• James L. White and Robert J. Milligan have drilled a large gasser two miles east of Brownwood, Texas. The well measured 1187 Mcf of gas on preliminary natural flow and was considered good for 1500 Mcf without acid. White and Milligan have a drilling block of nearly 1000 acres surrounding the discovery.

• Thirteen new gas fields were discovered and named in Oklahoma during 1946. Five of the fields were in Okfuskee county, two in Lincoln, and one each in Hughes, Washita, Creek, Oklahoma, Pontotoc and Beckham. Production varied from 650 Mcf to 23,000 Mcf and depth from 930 ft. to 6235 ft.

• On Jan. 13 the Gulf Refining Co. staked its eighth location for oil and gas exploration in Mississippi since Jan. 1. The new location was for a test in the Baxterville field of Lamar county—the Gulf-Welch Jonathan Davis "A" No. 1. Wet weather retarded work on Gulf's other new locations.

• Carter Oil Co. recovered a 17-ft. shale and oil saturated sand section from a core taken in its newest wildcat well in the Choctaw county, Alabama, oil field. The Carter well now is down to 3195 ft. and the company is preparing a Schulmbeger test.

Bechtel Corp. is New Name

Bechtel Corp. is the new name of Bechtel Brothers McCone Co., effective Jan. 1. The change was made in the interest of simplification and convenience, and the firm's policies and scope of services as engineers and constructors will remain unchanged.

At the same time, three subsidiaries became Bechtel International Corp., Compania Bechtel, S. A., and International Bechtel, Inc.

FOR SPEEDY UNDERGROUND PIPING INSTALLATIONS... Greenlee Pusher

Installing 25 feet of 4-inch drain pipe under both a railroad and a paved street could be a mighty tough job as you well know. But, as shown above, the operation was a simple one for The Texas and Pacific Railway Company . . . they used a GREENLEE Hydraulic Pipe Pusher!

In studying labor and timesavings on a typical job, this company estimates that the GREENLEE can reduce a $105 labor cost to around $18. Also it saves on excavating, tearing up, and subsequent replacement of pavement and lawns.

With a GREENLEE Pusher *one man* pushes pipe through the ground *easily and quickly* . . . under streets, sidewalks, lawns, flooring, tracks and other obstacles. Often pays for itself on the first few jobs. Get complete facts now on how this timesaving equipment can help you install pipe faster, easier, better . . . and at greatly reduced cost!

REGISTERED TOOLS
GREENLEE
FOR THE CRAFTSMAN

Send for complete information on GREENLEE Hydraulic Pipe Pushers.
Greenlee Tool Co., Division of Greenlee Bros. & Co., 1942 Columbia Avenue, Rockford, Illinois.

Industrial Gas Supply Halted During Cold Wave

The natural gas supply of more than 50 St. Louis area industries was shut off Dec. 30, causing some of them to close down, and others to curtail production and put 10,000 men out of work. Laclede Gas Light Co. and Mississippi River Fuel Corp. notified industrial users Dec. 29 that service would be cut off on the 30th to enable both concerns to meet the heavy home demand. William Marbury, vice president of Mississippi Fuel, said the cold wave had caused exceptionally heavy demands for heating all through the system.

Among large plants which closed temporarily were Chevrolet and Fisher Body factories, Hussmann-Ligonier Co., and the National Bearing Division of the American Brake Co.

Laclede Gas Light was criticized by several trade associations for taking on 12,000 new domestic customers when this increase meant that the firm would be unable to supply its long-established industrial users. Alfred Hirsch, Laclede vice president, stated that under current housing conditions, home heating supplies come first.

TGT Votes Wage Increase

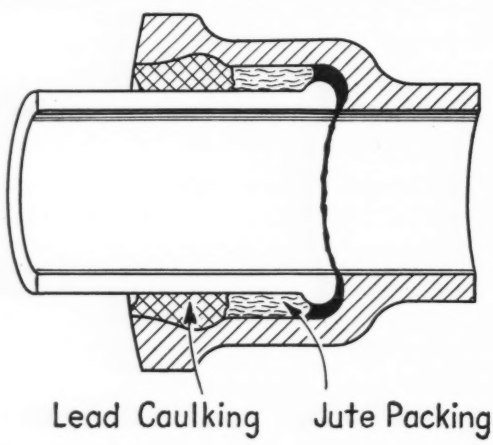
A general wage and salary increase amounting to 15 cents per hour for hourly-paid employees and a corresponding increase for salaried employees was voted recently by the board of directors of Tennessee Gas and Transmission Co., Houston, Texas. President Gardiner Symonds said the increase was approved in recognition of the advanced cost of living and the unusual demands which have been and will continue to be made on the entire organization.

CHANGING OVER?

. . . then consider "Carboseal" Anti-Leak

Are you changing over to distribution of dry manufactured and natural gas or propane or butane? If so, you should anticipate the maintenance problems of a dry-gas distribution system. The jute packing of bell-and-spigot joints dries out rapidly in a dry-gas system. The result is increased leakage of gas, vegetation damage, and possible hazardous conditions.

"Carboseal" anti-leak will help you solve such maintenance problems. This compound is easily introduced into gas mains—it swells the jute fibers and keeps joints gas-tight indefinitely. The average cost of "Carboseal" to treat one mile of three-inch equivalent main is $85.00. "Carboseal" anti-leak users have frequently experienced as much as 100 per cent leakage reduction! Joints treated thirteen years ago are still gas-tight as indicated by the soap test.



How "Carboseal" Anti-Leak Works

A typical bell-and-spigot joint is illustrated where jute fiber packing is depended upon to prevent gas leakage. "Carboseal" Anti-leak, when introduced into gas mains by any of the various methods accumulates at the bottom of the main and reaches every joint. Dried-out jute fiber packing takes up "Carboseal" by capillary action — like a sponge soaks up water. "Carboseal" swells jute fiber packing as much as 44 per cent and makes joints gas tight indefinitely.

Complete information on application, cost, and results to be obtained with "Carboseal" anti-leak treatment is available in a 20-page booklet. Write for your copy today.

CARBIDE AND CARBON CHEMICALS CORPORATION
Unit of Union Carbide and Carbon Corporation
UCC
30 East 42nd Street, New York 17, N. Y.

CARBOSEAL ANTI-LEAK

"Carboseal" is a registered trade-mark of Carbide and Carbon Chemicals Corporation.

Plastic-Coated Pipe Now In Production

After several years' testing in oil-field equipment, steel pipe protected with baked-on phenolic plastic is being manufactured for industrial and home use by the Spang-Chalfant division of the National Supply Co., Pittsburgh, Pa.

The corrosion-resistant pipe is first shot-blasted inside, then up-ended in a rack and liquid plastic forced in. The excess plastic is drained slowly, and the pipe is air-dried and baked. Four successive coatings are used. It is stated that for other than oil-field use, the pipe can be coated both inside and out.

Propane Storage Tanks Installed By Laclede

Laclede Gas Co., St. Louis, recently completed installation of six 30,000-gal. propane tanks, three at the coke station and three at Station A. According to C. E. Schoene, chief engineer, three more foundations have been erected and it is hoped that three additional tanks can be delivered in February.

The propane gas stored in these tanks, with approximately 2500 Btu per cu. ft., is expected to meet the firm's emergency and peak load requirements.

A.G.A. To Publish Teachers Gas Range Guide

Scheduled for publication in February by the American Gas Association is a manual on gas ranges for domestic science teachers. All phases of care and use of the gas range will be covered in a booklet readily adaptable to the classroom. Automatic controls and other features of modern, automatic ranges will be highlighted.

It is planned to revise the material for consumer distribution.

A. O. Smith Moves Water Heater Division

The Water Heater Division of the A. O. Smith Corp. has been moved from Milwaukee to the company's new $3.5 million water heater plant at Kankakee, Ill. James F. Donnelly is in charge of the sales division, and his two assistants are Paul H. Cramp and Don D. Williams.

Dresser Reports Earnings

On Jan. 10 Dresser Industries, Inc., made public its annual report to shareholders, showing that net earning for the fiscal year ended Oct. 31, 1946, totaled $1,037,235 on net sales of $54,783,188. This compares with net earnings of $1,921,628 on net sales of $80,544,911 during the previous year.

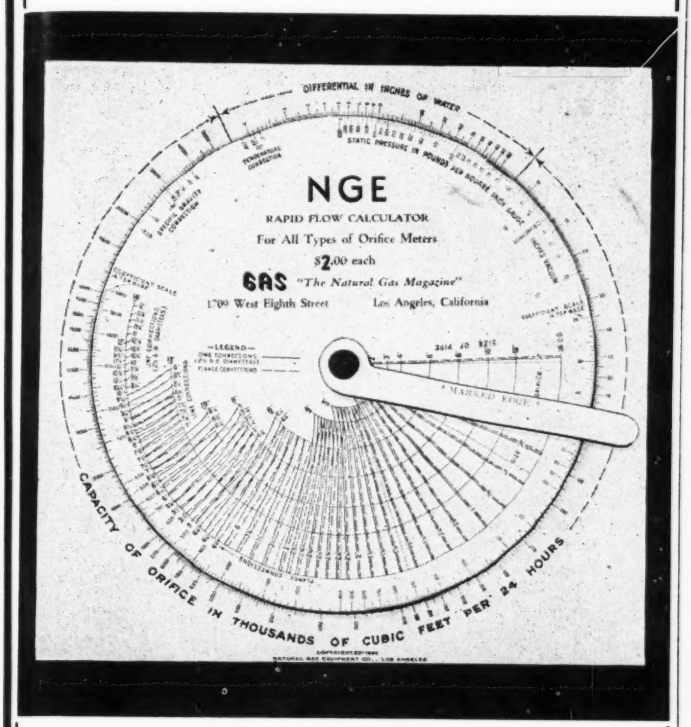
Arizona Companies Merge

The Farmers Gas Co. and the Natural Gas Service Co., both of Coolidge, Ariz., were merged in December into the Natural Gas Service Co. of Arizona. Marshall A. Moody is president of the new company, and Dwight B. Taylor is vice president and general manager.

NGE RAPID FLOW

CALCULATOR

FROM 2 inches TO 16 inches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RAPID FLOW CALCULATOR
For All Types of Orifice Meters
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CAPACITY OF ORIFICE IN THOUSANDS OF CUBIC FEET PER 24 HOURS

. . . will quickly compute any of a series of variables in the transmission of natural gases.

SIMPLE to operate: Set dial . . . Turn indicator . . . *and instantly find*

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Our NGE CALCULATOR has been tested in field and desk use. Why not let it *help you* with your daily problems. If interested send in coupon and you will receive our calculator in a few days.

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25% discount on all orders for 25 or more

Gentlemen: Please send me.....NGE *Gas Flow Orifice Calculators* for which I am enclosing my check or money order for $..... *Add 2½% sales tax in California.*

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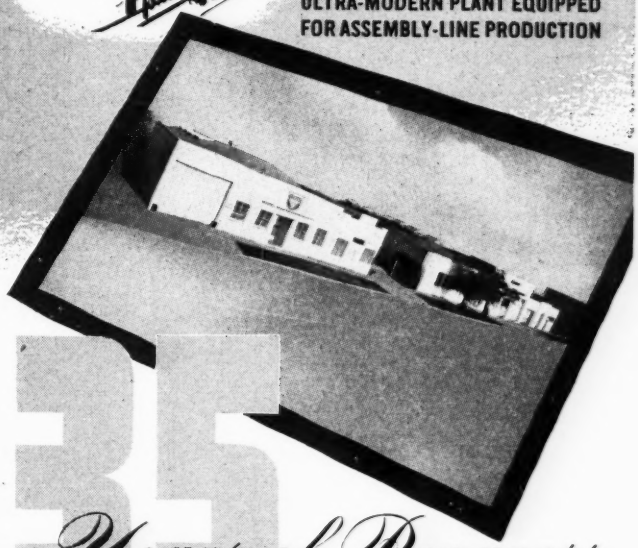
1912 ORIGINAL HAMMEL FACTORY AND SALES OFFICE

1947 ... HAMMEL'S NEW, ULTRA-MODERN PLANT EQUIPPED FOR ASSEMBLY-LINE PRODUCTION



35 *Years of Progress*

...and what it means to you!

Expansion from 500 to 33,000 square feet of factory space with a production capacity of 15,000 units... from 10 to 150 experienced personnel...to a name now well known and respected throughout the gas heating industry. These are only a few of the *tangible* highlights in Hammel's 35 years of progress that mean finer quality heating equipment for you.

But the *intangible*...and important, underlying factor behind Hammel's success is *your* confidence in the inherent efficiency of Hammel products. And it is this confidence that we increasingly strive to merit as Hammel moves into its second 35 years of keeping pace with newest engineering and research development... of perfecting the finest equipment that modern gas heating science can produce.

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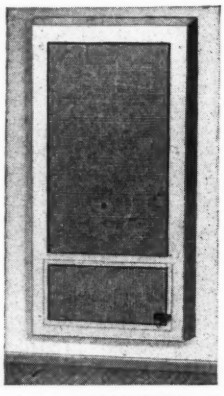
WILLIAMS VENTED WALL WARMOLATOR
for New Residences.
For Butane, Propane or Natural Gas



Dual type. 45,000 B.T.U. input.
Color, light ivory. For 2x4 studs.
Automatic temperature control with Wall Thermostat or for manual control with pilot lighter.
Easily installed—Easily accessible.
No pit or basement. Approved by A.G.A.
Eligible for F.H.A. loans.
Size of face 25¼" wide, 50" high
Size of recess in walls, 23¾" x 48" high.
Projects from wall, 4 inches.
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Standard REMOTE CONTROL **VALVE COMPANY** SOUTH PASADENA CALIFORNIA

PIPE LINE NEWS

• The FPC has announced receipt of an amended application from the **Trans-Continental Gas Pipe Line Co., Inc.,** Longview, Texas, for authorization to construct facilities to transport natural gas from Texas to the Eastern Seaboard. Cost of the project was estimated at $130 million.

In the original application filed March 1, 1946, Trans-Continental sought authorization to operate the Big Inch and Little Big Inch lines for natural gas. The principal transmission line of the proposed project would be a 26-in. pipe extending from near Hemphill, Texas, to various points of delivery in the Eastern Seaboard area of New York, New Jersey, Pennsylvania, Maryland and Delaware. The project would include dehydration plants, meter stations, and 14 compressor stations.

• Construction began this month on pipe lines to carry natural gas into the Harrison-Eureka Springs area, L. L. Baxter, president of the **Arkansas Western Gas Co.,** said today. Ninety miles of pipe will be laid from Fayetteville through Madison, Carroll and Boone counties to Huntsville, Berryville, Harrison and Eureka Springs. Scarcity of materials and uncertainty as to delivery dates may delay progress, he said, but completion of the work this year is scheduled.

• **The Austin Field Pipe Line Co.,** Detroit, has filed with the FPC an application for permission to construct facilities required for transportation of natural gas from the Austin and Reed City gas storage fields near Big Rapids, Mich., to the city gates of Mt. Pleasant, Ann Arbor and Detroit. The proposed facilities would be operated by the **Michigan-Wisconsin Pipe Line Co.** in its service of gas to various districts of **Michigan Consolidated Gas Co.**

• The FPC has received a request from the **Penn-York Natural Gas Corp.,** Buffalo, N. Y., for authority to construct and operate a pipe line to transport and sell gas to the **Dominion Natural Gas Co., Ltd.,** of Ontario, Canada. Penn-York proposes to purchase gas from **New York State Natural Gas Corp.** and deliver the gas to a line to be built by Dominion, beginning at the Canadian border. Maximum daily demand would vary from 15 to 18.5 MMcf during the first five years.

ENGINEER WANTED

"Engineer, not over 40, for development design and testing of gasfired residential heating equipment. Should have experience with manufacturers of such equipment. Location East, steady employment with well-known manufacturer."

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• H. F. Carr, district manager for **United Gas Pipe Line Co.**, recently announced that a new source of natural gas will be available for the New Orleans area in the near future, with the completion of a pipe line from the Stella field in Plaquemines parish. A 12-in. line, 17.4 miles long, will run from the Barataria oil field, picking up gas from deep sands in the Stella field. The Barataria project, designed to take care of flare gas from the Barataria oil sands, was announced some time ago as part of the state's conservation program. Construction of the line will save the waste of close to a billion cu. ft. of gas yearly, as well as opening a market for the gas-condensate sands at the Stella field.

• **The Kokomo Gas & Fuel Co.**, Kokomo, Ind., has started laying a 12½-mile pipe line of 8-in. coated welded steel gas pipe from just north of Tipton, Ind., to Kokomo at a cost of $150,000. The new line will parallel the company's present 6-in. line which was laid nine years ago when natural gas was first introduced to Kokomo. President Ed M. Hahn said the line is necessary because of the greatly increased demand for gas in that industrial city.

• Construction of a second natural gas line to transport fuel from the Rio Grande Valley to industries at Monterrey, Mexico, will start in the near future, according to Feliziano Elizondo, president of **Compania Mexicana de Gas, S.A.** The line, which will parallel an existing 30 million ft. line, will have a capacity of 80 MMcf and will be a high pressure line. It is expected to cost $4 million.

• **Cities Service Gas Co.** has completed construction of 6½ miles of 16-in. line, from the Craig storage field near Olathe, Kan., to the Glavin meter station near Kansas City. It is estimated that deliveries from the Craig field will be increased from 10 to 15 MMcf per day through the new line. Gas thus transported is available for peak hour demands in the Kansas City area.

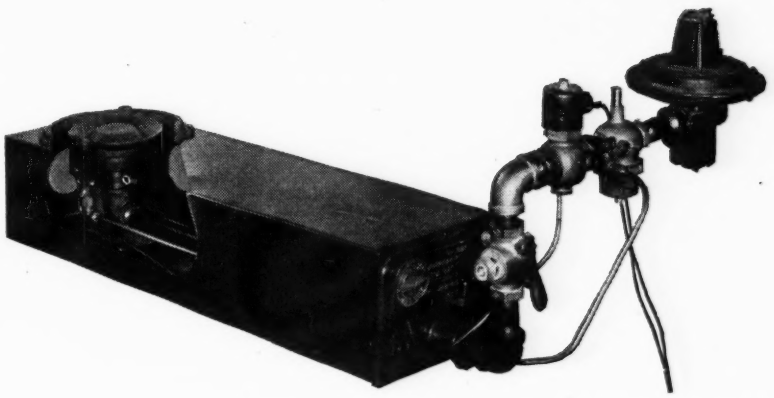
• President Maurice White of the **Mobile Gas Service Corp.** has announced that his company will spend $900,000 in the extension of its pipe lines in West Mobile, Ala., and other residential areas during 1947. White says the company serves 21,000 homes in six cities and practically every large industrial plant and all the hospitals in the area.

• By a vote of 290 to two, citizens of the city of Ripley, Miss., in a special election passed a resolution to issue revenue bonds in the amount of $225,000 for installing a natural gas distribution system in the city and a transmission line to supply the system. The town of Blue Mountain will be served from the same line.

• The FPC has authorized **Hope Natural Gas Co.**, Clarksburg, W. Va., to construct and operate additional natural gas transmission facilities in West Virginia at an estimated cost of $4,552,000. Proposed facilities include nine compressor units, one boiler, and 58 miles of 20-in. loop line paralleling existing lines.

• Construction work on a 100-mile pipe line from the Hidalgo county, Texas, San Salvador pool to Agua Dulce, Nueces county, is to begin immediately, according to L. C. Managan, superintendent for **Tennessee Gas & Transmission Co.** The first barge load of pipe for the line arrived early in January.

JOHN ZINK CONVERSION BURNERS



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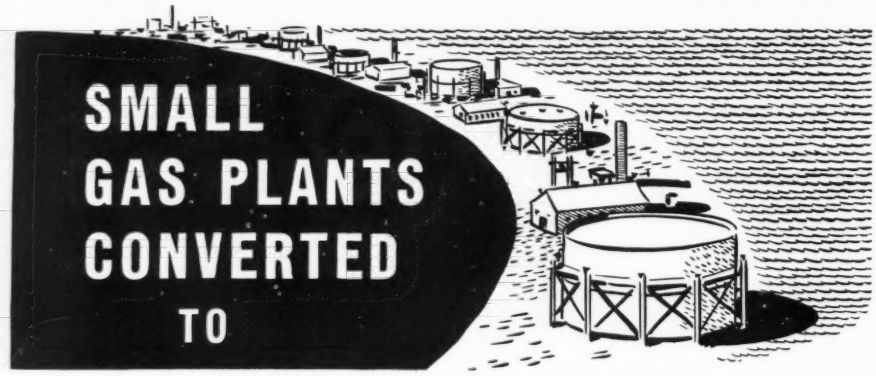

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Now is the time to convert your small city gas distribution system to Liquefied Petroleum Gas — for more dependable, more profitable operation. LP-Gas is your guarantee of uniform, uninterrupted, efficient service to your customers. Plant operating and maintenance costs are substantially lower. Contact your nearest Warren office today.

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Picture reveals essential and highly desirable POINTS of Fan-air mechanical draft gas burners. Not just a gas burner but a COMPLETE AND FULLY AUTOMATIC BURNER SYSTEM, factory tested and ready for application when received. It's the most modern gas burner and easier to install.

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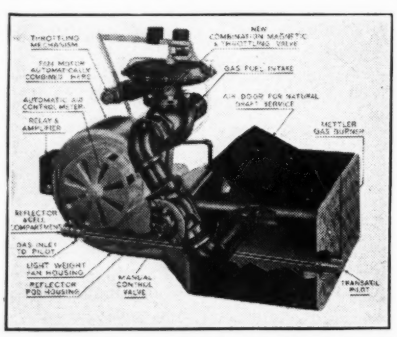

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FPC Limits Rehearing On Service in Detroit Area

The FPC order of Nov. 30, granting a certificate to Michigan-Wisconsin Pipe Line Co. to construct a new gas line from the Hugoton field to Detroit, has been reopened on one particular point. The limited reopening concerns Panhandle's rights to sell gas in the Detroit area claimed under the Natural Gas Act, certificates issued by FPC, and contracts with Michigan Consolidated Gas Co. The Nov. 30 order listed this point as one for future consideration.

A majority of the commissioners believe that Panhandle does not have exclusive rights to sell gas in Detroit, but they must determine what rights Panhandle does have and how the company is to be protected against competition resulting from the Michigan-Wisconsin line.

The FPC has not acted on petitions of the City of Detroit and Panhandle Eastern Pipe Line Co. to reopen the entire case for rehearing.

Discount Basis Revised By Minneapolis-Honeywell

Because of the recent trend of court and administrative decisions toward restriction of a seller's freedom to set different prices for various classes of customers, and because of a growing tendency for gas companies to depend on dealers to merchandise heating equipment, Minneapolis-Honeywell Regulator Co. has changed its discount basis as of Jan. 1.

The firm's policy had been to extend gas companies a better discount on controls than was given the regular heating trade. Henceforth, a discount of 25% will be allowed both to gas companies and to the general heating trade. Gas company orders already placed will be invoiced at the old rate, however.

Booklet Issued By A.G.A. On Testing and Approval

"Protecting Consumers - Seal of Tested Gas Appliances" is the title of a new three-color consumer booklet issued by the A.G.A. Laboratories Managing Committee. The Laboratories Approval Seal is explained, and testing and inspection operations are presented pictorially.

Designed for distribution by gas companies, manufacturers, and dealers, the booklet may be obtained from the Laboratories at $3 per hundred.

Rheem Purchases Site In Richmond, Calif., Area

Rheem Manufacturing Co. has purchased a 56-acre industrial site just north of its present Richmond, Calif., plant. The company is now in the process of enlarging and modernizing its existing Richmond plant, and definite plans for developing the new acquisition will be postponed until completion of the present program.

Properties Chart Available

The American Lava Corp., Chattanooga, Tenn., will fill requests of any executive or engineer for its new "Mechanical and Electrical Properties of AlSiMag Ceramics" chart. The company claims that the new, detailed chart is the first issued in this field in about five years.

Johns-Manville

TRANSITE FLUE PIPE

for domestic gas-burning appliances

An asbestos product—
IT'S COMPLETELY RUSTPROOF!
It's light in weight—
EASY TO HANDLE AND INSTALL!
Comes both ROUND and OVAL in a complete range of sizes and with a full line of fittings

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JUST A CHANGE IN
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• No change in policy. No change in management. And certainly no change in our efforts to provide the gas industry with the finest of purification materials. Just a change in name from Connelly Iron Sponge & Governor Co. to CONNELLY, INC. The research and development that have made Iron Sponge the industry's favorite purification agent are still going on just as they have for the past 72 years.

True, we've relinquished the manufacturing rights to back pressure valves, governors and manometers. They'll carry the Connelly name but will be made and marketed by another company. But we're still offering Iron Sponge, Caloroptics, H_2S testers and *p*H kits, and concentrating our efforts on these products.

Bring your purification problems, as before, to Connelly. The experience and the facilities to help you are here. And there's *still* no obligation.

CONNELLY, Inc.

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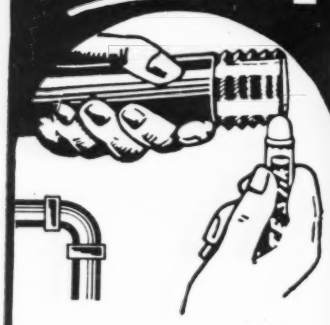
NOW-PIPE JOINT COMPOUND in Stick Form

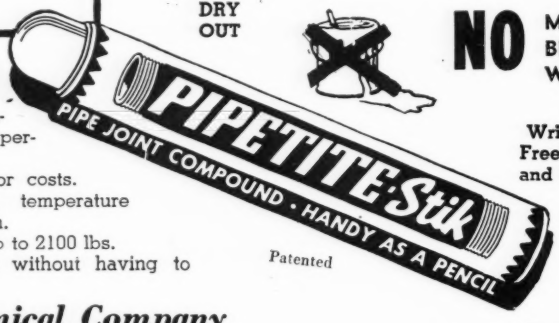


POSITIVE SEAL for GAS
Just rub 3 or more strokes across pipe threads. It spreads and fills threads when turned.

FOR ALL PIPE INSTALLATION AND REPAIR JOBS
Always Ready For Instant Use
ECONOMICAL—HANDY—CLEAN
Ideal for the Gas Industry
Tested and Fully Approved by Independent Laboratories and Industry.

WON'T DRY OUT

NO MESS BRUSH WASTE



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- You use only the exact amount of compound needed to form perfect seal—no waste.
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Complete Protection
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with
KITSON EMERGENCY GAS SHUT-OFF VALVE

TYPE IHF-22 A.G.A. Certified

Safe gas water heater operation is paramount. The Kitson patented Emergency Gas Shut-off valve acts positively before the water temperature reaches the danger point should the thermostat stick or fail to operate.

APPROVED AND USED BY LEADING GAS COMPANIES. Available in ½" to 1½" I.P. sizes.

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Write for descriptive literature and prices.

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Rockwell Files $15 Million Counter Suit Against AFL

When four AFL union officials, representing part of the company's employees, sued Rockwell Manufacturing Co., Pittsburgh, Pa., for $3 million in back wages and an equal sum in damages early last month, the firm retaliated by filing a counter claim for $15 million against these individuals and the people they represent, for violations of the employee contract with respect to hours of work and productive effort.

The company claimed that the employees who filed the portal-to-portal pay suit "conspired together with the intent of limiting production of manufactured items, conspired to limit piecework production to an arbitrary figure selected by them, and jointly and severally refused to apply themselves to production."

This suit for "slowdown" losses is believed to be the first action of its type.

Kansas City Companies Merge With Gas Service Co.

Effective midnight, Dec. 31, the Kansas City (Mo.) Gas Co. and The Wyandotte County Gas Co., of Kansas City, Kan., were merged into The Gas Service Co. Approval of the merger was requested from the SEC late in November and granted on Dec. 27. The new company will simplify its corporate structure, carrying through a $16 million refinancing program, resulting in a saving of about $300,000 in interest.

T. J. Strickler continues as operating head of the Missouri property, with Clarence H. Waring operating head of the Kansas portion. Any differences in employee benefits or advantages will be equalized.

Servel Gas Kitchen Exhibited at Food Fair

A streamlined Servel New Freedom Gas Kitchen was the highlight of Laclede Gas Co.'s exhibit at the Greater St. Louis Food Fair, held in Kiel auditorium, Dec. 1-7. Attendance at the fair was estimated at 75,000.

Of particular interest to visiting homemakers were the air control cabinet, which dispels cooking odors and steam from the house; the food conditioning unit, where the perishable food storage in the gas refrigerator is integrated with the dry storage cabinet; and the system of finger-tip storage shelves.

Laclede now has two complete Servel kitchens on display in its showrooms.

"The Consolidator" Issued By Oklahoma Company

Consolidated Gas Utilities Corp., Oklahoma City, is publishing a new monthly house organ, "The Consolidator." E. C. Joullian, president of the company, is publisher, and Lauren H. Clegg, advertising manager, is editor.

City Franchise Sought

The newly formed Coral Gables (Fla.) Gas Co., recently presented to the city commissioners a plan to build a gas works west of the city and to lay mains at a cost of $1 million. A franchise was requested to pipe the gas to homes and businesses. The People's Water and Gas Co., operating in Miami Beach, previously asked to be considered for the franchise.

Consolidated Edison Co. Offers Appliance Courses

In response to a sales department offer, sent to members of the gas industry in the company's territory, Consolidated Edison Co. of New York, Inc., in October began a series of courses on the installation, adjustment and starting of gas appliances. The courses are attended by plumbers, heating contractors, manufacturers and distributors of gas appliances, cooperating appliance dealers, and builders.

Consisting of three two-hour sessions on successive days, they are limited to 10 persons each so that the equipment demonstration can be observed by all. Water heaters, burners, conversion burners, space heaters and industrial appliances, with piping, meters and other equipment connected, are used in the lecture demonstrations.

Sessions will continue until all who expressed an interest have had an opportunity to attend. Similar instruction on the installation and starting of gas refrigerators recently was given by the sales department to plumbers.

Lone Star Gas System Taxed During Cold Wave

Tom B. Long, chief dispatcher for Lone Star Gas Co., was one of the busiest men in Dallas when the state's worst cold wave in history struck early last month. From a springlike 70°, the mercury dropped 50° in 11 hours, creating a terrific demand for gas and necessitating a quick change to a winter basis.

Long and his assistants watched pressure and weather charts, ordered more gas wells in use, more gas pumped into the 500 miles of pipe lines from the 1300 wells in 80 fields, and handled the 1000 daily telephone calls which poured through the office.

The gas system on a single day supplied 579 MMcf to domestic users—300% more than the normal daily output. Long explained that the demand for gas was the greatest the company had ever experienced.

Electric Utility Revenues And Peak Loads Increase

According to preliminary figures released by the Federal Power Commission, operating revenues of the larger privately-owned electric utilities in the United States in November increased 8.5% over November, 1945. Revenues for 1946 were $285,990,000, compared with $263,535,000 the previous year.

The aggregate of major electric utility system peak loads for November, 1946, indicated a new record high of 41,923,000 kw. This total was 12.4% higher than the previous November and exceeded by almost 1.5 million kw the former record maximum, which was set in October, 1946.

Recorder Chart Improved

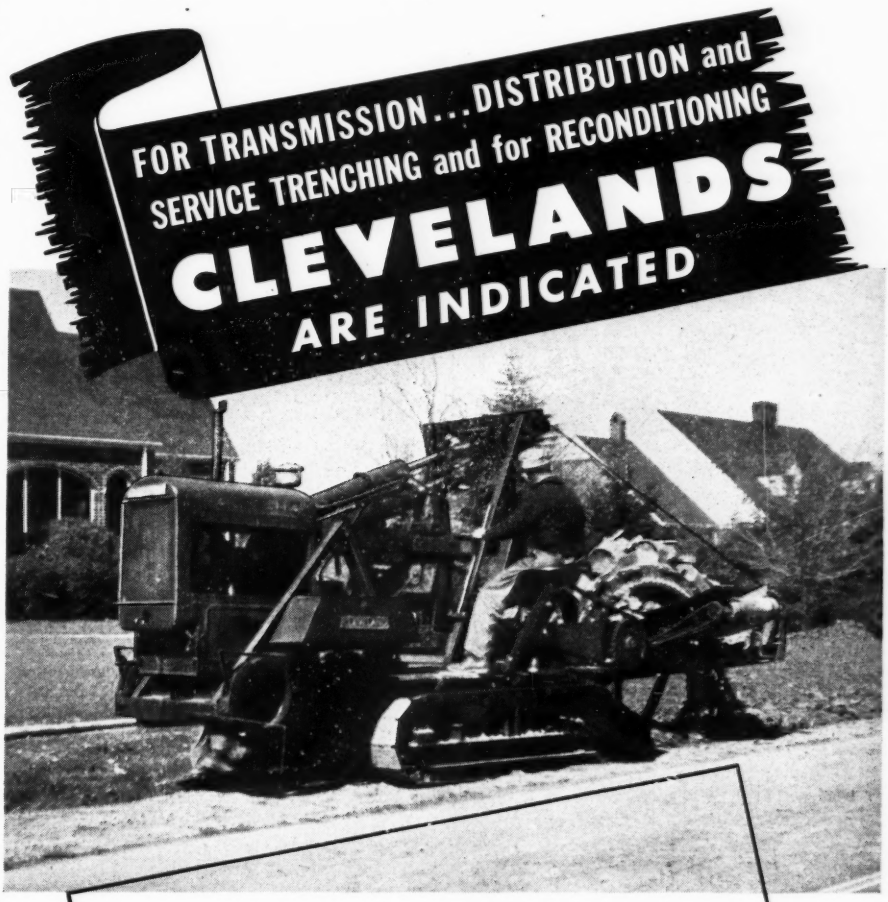
Bailey Meter Co., Cleveland, has recently introduced recorder charts printed in neutral gray. The firm claims that this makes it easier for operators and supervising engineers to read the charts because of greater emphasis given the colored records by the neutral background. It is expected to be particularly valuable where lighting is poor or where it is impossible to get a clear view of the chart.

Texas Group Urges Laws To Curb TRC and FPC

Bills to permit appeal to courts from decisions of the Texas Railroad Commission and for permissive pooling of oil, as well as gas, properties were recommended last month to Governor-Elect Beauford Jester by an industry advisory committee. The committee would have the legislature authorize permissive pooling for more efficient operation of properties in a single oil or gas reservoir, according to one bill. The commission would be authorized to approve such agreements, after hearings.

Another bill would permit suits to be filed in Travis county, Texas, to set aside any oil or gas ruling of the commission. The state supreme court recently ruled that orders of the commission may not be reviewed in the courts if they are supported by substantial evidence.

The committee also presented a resolution, adopted by its members, urging Congress to limit FPC jurisdiction to interstate transportation of natural gas. It seeks express prohibition of FPC regulation of the gathering or production of gas, the price paid the producer, or the end use of the fuel.



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Catalogs

• **American Radiator & Standard Sanitary Corp., P. O. Box 1226, Pittsburgh 30, Pa.**—The company has announced its first complete catalog of radiator heating equipment since before the war. Among the new developments presented are the American Arcoliner Wet Base boiler, specifically designed for oil firing, and the American Exbrook boiler for either oil or stoker firing. The catalog will also serve as a reference book for preparing specifications, and as a guide for proper selection of equipment.

• **Air Reduction Sales Co., 60 East 42nd St., New York 17, N. Y.**—This firm has announced publication of a new 64-page general welding and cutting products catalog, profusely illustrated and divided into two sections. One is for oxy-acetylene welding and cutting gases, equipment and supplies, and the other is for arc welding machines, accessories and electrodes. The last 10 pages of the catalog are devoted to specially complied electrode price lists. Free copy available upon request.

• **Davey Compressor Co., Kent, Ohio**—A booklet describing four 1947 DA-V-LITE portable lighting and power units is available from this firm. The booklet contains complete specifications on Floodlight, Searchlight, Combination and Beacon models. In addition to their lighting uses, these units may be employed to supplement existing power facilities or to provide motive power for electric tools. Current deliveries are on a 30 to 60 day basis.

• **Eutectic Welding Alloys Corp., 40 Worth St., New York 13, N. Y.** — The four-page pamphlet, "Arc Welding at Lower Base Metal Temperatures," announces "LowTemp" EutecTrodes. It gives information on the development, advantages, applications and data on flux-coated rods for arc welding all types of metals. Each electrode can be applied at lower base metal temperatures because of their flux coatings.

• **General Controls Co., 801 Allen Ave., Glendale 1, Calif.**—"Automatic Controls" is a 52-page catalog, pictorially illustrating the firm's complete line of automatic pressure, temperature and flow controls for gas, air, oil, water, refrigerants and other fluids applicable for industrial domestic, refirgeration and aircraft use, giving complete engineering data and list prices of products. Now available upon written request.

• **Roots-Connersville Blower Corp., 900 West Mount St., Connersville, Ind.**—Bulletin 40-B-14 is a 16-page, two-color booklet illustrated with halftones, sectional drawings, and proof curves of meter tests with positive displacement meters. Construction features of the meters are discussed, as well as sizes, capacities, applications, etc.

• **American Instrument Co., Silver Spring, Md.**—A new water vapor indicator for accurate, rapid and sensitive indication of water vapor content of compressed gases, and with modification of procedure for gases at or below atmospheric pressure, is announced in Bulletin 2147-88. Available on request from the manufacturer.